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Original Contributions.

OPENING THE BITE WITH CAP-FILLINGS WITHOUT DESTROYING THE VITALITY OF THE PULPS.

By M. F. Finley, D.D.S. Read before Section on Operative Dentistry, American Dental Association, at Old Point Comfort, August, 1897.

I wish to present to your attention a case which has been of considerable interest to me in that I do not know of one similarly treated, nor have I found in my limited consultations with brother

practitioners anyone who knows of a similar case; I therefore presume to ask your consideration of my statement of conditions and plan of procedure.

The patient, male, aged 62 years, had every tooth present in upper jaw and all in regular position, with exception of left cuspid, which closed inside its opponent of the lower jaw; the four incisors were

very much worn, so that the palatine surfaces presented a straight line or inclined plane from labio-incisive edge to palato-gingival line. These same incisors when jaws were closed came in contact with and pressed upon the lower gums. The bicuspids and molars of the left side showed some effect of mechanical abrasion, the outer cusps lapping pretty well over the outer or buccal side of the lower teeth opposite, the bicuspids and molars of the right side showing scarcely any wear at all. On the lower jaw the first and second molars, right side, were lost, accounting for the last mentioned con-

dition of the upper jaw, at the same time throwing the work of mastication almost entirely upon the left side of the mouth, and in consequence causing the wear spoken of on the teeth of that side on the upper jaw, the lower teeth suffering more loss of tissue than the upper ones, and also being, as it were, driven down into their sockets from the undue pressure, as appears in the model.

The lower incisors were worn to an inclined plane, presenting a surface opposite that of the upper incisors; the plane running from the palato—incisive edge to the labio-gingival line, and the incisive edges impinging on the upper gums when teeth were closed.

My belief is, that a good deal of responsibility for the excessive wear of the teeth and the depressed condition of the lower ones on left side was due to the malposition of the left upper cuspid (one of

the main abutments of the arch being so misplaced as to offer no resistance to the settling together of the two jaws); whereas, if the cuspid had been in its normal position, or had been forced there by regulating at the proper age, it would have been quite impossible for such a condition to have existed.

The contact of the front teeth with the gums opposite in closing the mouth, and the close proximity of the outer cusps of the upper molars of left side with the gums of the lower jaw, forcing the food in the process of mastication in painful contact with said gums, caused the patient so much discomfort that he sought relief or at least advice as to what might be done to the best advantage.

After taking impressions and getting models my first thought or inspiration, if I may so call it, was to open the bite with cast or struck-up slabs of metal, or cap-fillings, as I have decided to designate them. How to attach the cap-fillings was the question to be solved. On consulting several of my brother practitioners, all at first seemed to oppose my plan as not being at all feasible. First thoughts or impressions are the most lasting and there was no exception to the rule in this instance, as I persisted in the belief that a way could be found to attach these cap-fillings which would be satisfactory alike to patient and operator.

My reasons for not crowning the teeth, as was advised by some, were, that too much tooth structure to satisfy my conscience would have been sacrificed upon the approximal surfaces in preparing for such a procedure; the teeth were not decayed or broken, but were worn down; also all the teeth had living pulps; and lastly I was afraid to disturb the relation of the gums to the necks of the teeth so much as would have been required to place crowns over the

adjoining teeth, with no teeth missing to afford easy access to any of the surfaces to be cut away.

Now for my plan of procedure: The second bicuspid and first and second molars on left side lower jaw were restored or built up with cap-fillings, and the second bicuspid and third molar right side lower were crowned to carry a bridge to replace the lost first and second molars, occlusion being raised to correspond with opened bite.

In preparation for these cap-fillings the occlusal surfaces of the teeth to be capped were ground so as to make them nearly a plane, though not absolutely so. Then taking an impression in moldine and making die and counter with metal, I struck up pieces of nearly pure gold, about 32 gauge, to fit these ground surfaces, drilled four holes in the molars and three in the bicuspid, punched holes in the little pieces of gold to correspond in position and soldered platinum pins in them, and then united to them cusps struck up on a die plate and filled, thus making a cap of considerable thickness.

I should also say that the first piece of gold stamped to fit the tooth was thickened by a second piece stamped over the first and united to it before the pins were soldered in. Twenty carat solder was used in fastening the pins and filling the cusps and the two pieces were united with eighteen carat solder.

As to the location of the pin-holes in the molars, I drilled them at a safe distance from the margins of the occlusal surface of the tooth, in the centers of the four sides, by this means avoiding the cusps and thereby also the corunæ of the pulp; for, as before stated, all the teeth had living pulps.

As a result of my labors, the second bicuspid and first and second molars of the left side lower jaw were raised with cap-fillings, the approximal surfaces of the teeth not being disturbed in their relations one with another; and the second bicuspid and third molar of the right side were made to carry an all-gold bridge, thus raising the bite and restoring the lost masticating surface, preventing contact of the front teeth with the gums and opening the bite sufficiently to prevent pain during mastication. The cap-fillings were fastened with cement, as was also the bridge, and all were set at the same time so as to avoid irritation by pressure on a single tooth or on one side of jaw.

Let me relate an incident in connection with the construction of the bridge. When working on the third molar the patient related

his experience in having a gold filling put in on the buccal surface of this tooth by one of our late esteemed friends in New York City, which required a little more than an hour in preparation of the cavity and insertion of the filling, and for which he paid two hundred and fifty dollars. Since that occasion he said he had often wondered for what purpose he had preserved this third molar, as it was really not of much use to him, the two teeth in front of it having been lost, but he now realized how it had been preserved to advantage, as it enabled him to have this bridge put in, serving as one abutment.

ANSWER TO A CRITICISM ON MY METHODS.

By G. V. Black, D. D. S., M. D., Chicago.

My attention has been called to an editorial in the October issue of the *Western Dental Journal*, entitled "Upon the Subject of Alloys," in which the writer objects to an extract from my writings, which he says has been widely circulated. It begins as follows: "I do not care how you mix your alloys for filling, provided certain rules are employed." Following this the rules are given.

This sentence taken alone might be considered careless perhaps; but in the original context it followed a discussion of the merits of mixing in the palm of the hand and mixing in a mortar—and meant simply that either method might be employed.

The editor then proceeds to extol Dr. Fletcher's plan of mixing by shaking together the mercury and alloy in a bottle. He gives, however, no exact experiments going to show that this method is either better or worse than other methods of mixing. My own records of trials of that method show: 1st. That when the movement of the mass is carefully measured during setting, the method does not control shrinkage. 2d. That the mass so mixed makes an amalgam which flows more under a given stress than a mass made from the same alloy by other methods. 3d. That the mass so made has less strength and will be crushed with a less number of pounds pressure upon a block of given size than a mass made from the same alloy by other methods. These are the results of careful measurements by use of the best instruments yet known for the test of the physical properties of amalgams. If the editor of the *Western Dental Journal* has tests of a truly scientific character which give different results he should state them in detail, as I have given nearly all of mine.

The editor also objects to squeezing out surplus mercury after mixing with the alloy, asserting that changes in the qualities of the mass are produced. He does not say what changes, nor does he seem to have any accurate data on the subject. I may state here that this is a subject concerning which there is nothing accurately known. The question involved is this—In the partial solution of an alloy in mercury for the formation of an amalgam, is the solution selective, or does the mercury dissolve one of several metals in preference to others of which the alloy is composed, and thus carry out in the portion removed by "squeezing out" a proportion of some single metal greater than that in which it exists in the alloy? I know of no experiments on this point that bear the stamp of accuracy.

In my own experiments as to possible changes in the qualities of the amalgam produced, I have found that when the same percentage of mercury remained in the mass a given alloy would make a stronger amalgam if so mixed that a little mercury could be squeezed out by the ordinary methods. I have supposed that this greater strength was due to the equalization of the mercury in the several portions of the mass by the squeezing.

The question as to whether or not what I have written upon the subject of amalgams within the last few years should be considered as "incorrect and unscientific" I will leave to the profession.

DENTAL PROSTHESIS.

By J. H. Kennerly, D.D.S., St. Louis, Mo. Read before the Missouri State Dental Association, at Pertle Springs, July 6-9, 1897.

It has always been a source of wonder to me that among so many papers read before the different dental societies of this country, so few are written on the subject of dental prosthesis. It may be because the writer does no prosthetic work, or because he thinks the making of an artificial denture of too little consequence to spend his valuable time in writing about. Be that as it may, dental prosthesis should still claim as much of our attention as any other special branch of our profession.

Quite recently I heard a paper read before one of our dental societies, in which the writer said that in many localities the dentist was judged by his ability to extract teeth, and he might well have added, his ability to make an artificial denture. While there are a number of our profession who do no prosthetic work, yet the time was with

even these when they were like the graduate fresh from the colleges of to-day, glad to do even this part of, to them, the drudgery of their profession. Doubtless some of you have noticed that among medical students it is the ambition of every man to be a surgeon, yet how few among the great number graduated ever attain any very great prominence in this special branch of medicine? So it is with the great majority of dental students. When they have once reached the operating chair, and inserted a gold filling, all thought of plate work seems to have been forgotten in their great desire to become operators; and yet when they are graduated and located they many times find that their lack of knowledge concerning prosthesis is a very serious hindrance to their success as general practitioners. Many of them are compelled to take a post-graduate course before they can successfully meet competition, or else they send their work to some one who makes a specialty of this branch of dentistry. Time and money could have been saved had the student taken advantage of the facilities offered in the prosthetic laboratory of the college from which he graduated.

All of you have seen more or less of the work done in the so-called shops of the city; at least some of which seems to convey to the mind of the conscientious dentist the idea that those doing it cared more for the fee they were to receive for the work when completed, than for the comfort and appearance of the one who was doomed to wear the finished denture. The defects most commonly noticed are the disregard for color and size, and the lack of resemblance to the natural teeth where partial cases are made. To such I would suggest that they devote some time to the study of the table of "Temperament in Relation to Teeth," by Dr. James W. White in the *Cosmos* (I think of March, 1881), or as found in our standard text-books on prosthetic dentistry.

We frequently see cases where the teeth used are so white that they look ghastly, or so dark as to be noticeable even to those unacquainted with the profession. True prosthesis consists in imitating nature so nearly as to even deceive the elect. A much more artistic denture can be made by using plain teeth. True, it requires more time and skill to accomplish the work, but the results amply repay us for our labor. The first essential to a perfect fitting denture is an accurate impression of the mouth, which can be obtained only with plaster; wax and modeling compound may be used, but

never with the same success as plaster. I have heard one or two say that they took all impressions with wax and modeling compound; still I cannot help but believe that their plates were more or less defective as regards fit. I believe that the more difficult the case, the greater the indication for the use of plaster. True, in these difficult cases the impression will break in removing from the mouth. If you will allow the plaster to set hard, so that it will break with a clear fracture, the pieces can be placed together after removing from the mouth, and a model made from such an impression will give a perfect fitting plate. A beautiful surface can be given to a model by coating the impression with sandarac varnish, to which some analine dye has been added after the varnish has set. Lay the impression in water while mixing plaster and mix plaster as thick as it can be poured.

Next in importance to the impression is the bite for articulating the teeth, for we all know that many otherwise perfect dentures are rendered totally useless by a defective articulation, caused many times by carelessness in taking the bite. The old practice of taking the bite in a roll of wax will do in partial cases and for trial articulation, but the patient should be compelled to return or remain in the office until the case can be perfectly articulated.

The investment of a case should be done with as much care as any other part of the work. In full cases the first half of the investment should just reach the edge of the wax plate, the second half covering the entire case. This brings the line of separation to the top edge of the plate, allowing the packing to be done entirely on one side, thereby lessening the accidental squeezing through of the rubber used for the body of the plate. After thoroughly vulcanizing the plate should be finished with all the skill the maker possesses.

MECHANICS OF BRIDGES.

By A. M. Tutt, D.D.S., Liberty, Mo. Read before the Missouri State Dental Association, at Pertle Springs, July 6-9, 1897.

Mr. President and Gentlemen: There is no pride in my heart as I appear before you to-day, for my first paper before this association must be the record of a failure.

For some time this subject has appealed to me, because I thought we should know something definite about the mechanical principles which underlie the dental bridge, and also because so little has been

presented along this line. It was my intention to find the strength of the average bridge by the application of known mechanical laws and accepted mathematical formulæ, but the more I studied the question the more hopeless the task became, until finally the impossibility of attaining the end in view dawned upon me; so that now I have nothing to present to you but a ruin; and I present it in the hope that some of you may be interested in ruins, and that out of my failure there may come to someone else a greater measure of success.

A dental bridge is the simplest form of a bridge that we can construct, consisting as it does of a beam resting upon two or more supports. I am aware that bridges with only one support are sometimes placed in the mouth, but cases where these are justifiable are so rare that I have not taken them into account; also bars resting on fills.

From a mechanical standpoint, in constructing a bridge we must take into consideration three points, viz, the piers or supports, the load or force they will have to withstand, and the strength of the material used with respect to the load. If we do not understand something of these things our work is empirical and not scientific.

First as to the supports—the engineer in bridging a river can make and place his piers to suit himself, but we must utilize the ones that are already in place. These piers should be artificial crowns upon the natural teeth or their roots, and these teeth and roots should be strong and firmly fixed in their places. The artificial crown should be one whose attachment is secured by a post inserted in the enlarged pulp-canal, or by a band grasping the root just under the margin of the gum. If we are to use the crown with the post, we should be careful of two things: first, in enlarging the canal, the enlargement should be carried toward the palatal portion, for in the anterior teeth, at least, the direction of the force against them is outward, and if the anterior segment of the root be weakened it is liable to fracture; second, the post should be as long as possible and flattened, because a round post is needlessly strong in its transverse diameter, and not strong enough, unless too large, in its anterio-posterior diameter.

If the attachment is to be secured by a band grasping the tooth at the cervical border, the one thing needful is a close adaptation of the band at the neck of the tooth. It is strange that so little atten-

tion is paid to this important factor, when the life of the whole structure depends so much upon it. Perhaps no dentist will deny that this is good practice, yet there is found a very small percentage of crowns that are not lacking in this respect. Too much dependence is placed in burnishing the band down to the root, and not enough attention is paid to giving the root the proper shape. The dentist who depends upon burnishing is laying up for himself trouble in the days to come. We can expand gold in the mouth, but we cannot contract it.

I have not thought it necessary to go into the details of constructing the crowns, as that is more especially a matter of manipulation. Almost every dentist has his own method of making crowns, and no doubt most of them are good, but instead of advocating any one, I desire to call your attention to the second point, the load the bridge will have to carry. By the load we mean the force or forces applied to the structure. It is obvious that the greatest force which will be applied to a bridge in the mouth, and the only one we need to consider, is the force which the muscles of the jaws exert in closing the teeth—the force of occlusion. This force is variously estimated and is given all the way from 30 to 500 pounds, but probably the most satisfactory results on this point have been obtained by Dr. G. V. Black. His experiments gave results ranging from 30 to 270 pounds, and he concludes that we should always allow for a force of 150 pounds. But engineers always construct bridges to withstand about five times more than the actual weight that is likely to be placed upon them. So if we apply this rule, we should allow for a force of 750 pounds.

Now, the *stress* on the beam of the bridge is the reaction in the beam—due to the load—per unit area of its cross-section, and is measured in pounds per square inch. For instance, if we let P represent the force applied in pounds, and A the area of the cross-section in square inches, then the mean intensity of the stress on the section will equal $\frac{P}{A}$, which will be the number of pounds per square inch.

If our beam is regular in shape, we have only to take the stress on the cross-section and multiply it by the length of the beam; but the beam in the dental bridge is never regular, so we can calculate the stress only on any given cross-section. But since we know that the strength of the beam is equal only to the strength of its weak-

est point, we can take the smallest cross-section and find the minimum stress of the whole beam.

Let us take a particular case for example. I found in a bridge, made by a well-known member of this association, the area of the smallest cross-section to be $\frac{1319}{14745}$ of a square inch. Now, taking the force to be 750 pounds, and applying the above formula, we find the stress on this particular bridge, at its weakest point, is about 45 tons per square inch.

If I could have taken a beam of gold of the same dimensions as the above, and determined the amount of force it would withstand, I could then have compared it with the stress it would have to withstand. But when I came to consider the strength of the material used I found myself completely at sea. The beam of the bridge consists of an alloy of unknown proportions. Nothing is known of its elasticity or of its resistance to strain, and its varying density presents a combination upon which no calculations can be made.

The only possible way to find the strength of a bridge is by actual experiment, and inasmuch as no two bridges are the same in size or form, a separate experiment will have to be made for each structure. And so we conclude that there is nothing left for us but to have faith that when we construct our bridge no force that can be applied to it in the mouth will break it.

TREATMENT AND FILLING OF ROOT-CANALS.

By H. H. Sullivan, D.D.S., Kansas City, Mo. Read before the Missouri State Dental Association, at Pertle Springs, July 6-9, 1897.

The subject that I have chosen is one which graces the pages of all our meetings, but you will soon discover that this is written solely from my own mode of procedure in the cases cited, and not taken from any text-book. It will greatly assist me if you will watch the cases, as they are all numbered 1, 2, 3, etc., and it will save repeating much. I believe there is nothing in operative dentistry that has given the average practitioner so much worry and thought as his inability to treat and fill root-canals. The main cause does not lie in the want of literature, for you cannot pick up a dental journal to-day without finding from one to five articles or practical points on the treatment or filling of pulpless teeth; the text-books are also full, yet there is a woeful lack of knowledge upon this subject, and why? Because we have not yet awakened to the im-

portance of saving the organs of mastication. The average dental student does not learn the mechanical application of medicines and fillings of this kind, because he thinks it of too little importance; he would rather put his time on Anatomy, Chemistry, Physiology, Materia Medica or Therapeutics, and possibly Orthodontia; and he reasons that when he has a city practice, in six months after graduation, his patients will be of the refined order that visit him every six months and send their children oftener, and he expects to be thus relieved of the ordeal of treating exposed pulps, abscessed teeth, pericementitis and a score of similar disturbances. But when he does enter the realm of an office life, and finds to his sorrow that four of five patients who come to him have one or more teeth needing treatment, his heart sinks and he calls in review the professors who lectured on that worn out subject—"treatment and filling of root-canals."

I will now cite the first case as it presents itself to one of our new graduates: A lad of 15 years presents himself with an aching lower first molar, which has kept him awake two or three nights. The doctor carefully examines the case and finds a simple exposure, and the pulp in a state of acute inflammation; but owing to the abundant supply of saliva he cannot secure dryness long enough to make an application of medicine to quiet the pain, so he adjusts the rubber dam, dries the cavity and places in it a pledget of cotton saturated with chloroform. This partially relieves the pain, and he then punctures the pulp with a fine broach and again applies the chloroform, which this time stops the pain. The following, to reduce inflammation, is now applied to cavity on cotton: Tannic acid, cocain crystals, oil cassia; and sealed in with a pledget of cotton dipped in chloro-percha. The next morning the following is used: Tannic acid, cocain crystals, oil cassia, arsenious acid, small drop. Seal as before or use cement. Never apply a devitalizing agent later than 3 p. m., and not then unless you have first reduced the inflammation, or severe pain will keep your patient awake. Do not use sandarac varnish to stop a cavity in which you have an exposed pulp, as the alcohol will nearly always increase the pain.

Case No. 2. Acute abscess of first molar. Paint gums, using camel's-hair pencil, with tr. aconite, tr. iodin, aa℥i, chloroform, ℥ss. Then gently remove all decay and foreign matter from cavity with excavators, wash with tepid water from a syringe, open all of chamber; take a small broach and enter canal, removing and cleaning

until you have reached the apex; then with a smooth broach, dipped in sandarac varnish and wound with a few threads of cotton dipped in peroxid of hydrogen, cleanse the canal by a pumping process, being very careful that the cotton is not tight enough in the canal to force any medicine or debris through the foramen into the apical space. If buccal canals are so small that you cannot enter them, place a pledget of cotton dipped in a 50 per cent solution of sulfuric acid over them for a few hours, and then with a fine broach gradually enter and drag out the softened substance until you find your way to the foramen. Finally, dip small threads of cotton twisted to form the shape of a pulp in oil of cassia and iodoform, and insert with smooth broach to the end of canal; place a tight pellet of dry cotton in cavity of tooth, paint gums again and dismiss patient for 24 hours. Then repeat treatment and seal cavity with cotton dipped in chloro-percha, and if it remains quiet 24 hours you may proceed to fill canals, capping the canal filling with cement. You will find few cases in which 24 hours will not be time enough.

Case No. 3. Chronic abscess. Remove contents of cavity and canals in manner indicated in case No. 2, following with peroxid of hydrogen; when this ceases to effervesce, use a 50 per cent solution of sulfuric acid and dilute with a saturated solution of bicarbonate of sodium. Treatment. Fill canals with cotton saturated with oil cassia and iodoform, as in a case of acute abscess; allow this to remain in the tooth four days, protected by cotton saturated with sandarac varnish; in the center of stopping, while you are inserting the same, hold an instrument used for filling root-canals, which extends through the stopping, and with water syringe dampen stopping; then remove canal plugger, leaving a small opening for a vent, through which the gas can easily escape, and treat until no odor is perceptible.

Case No. 4. Where absorption of root has taken place, leaving sharp spiculæ at apex, which continually irritates the pericemental membrane. No fistula. First make a fistula by the use of a serrated plugger point, dipping the instrument in 95 per cent carbolic acid; dry gum over apex and touch instrument to point where fistula is desired; the acid will form an eschar, which you can remove with the serrations of plugger point; dip the instrument again in the acid and repeat application; by this means you will soon, without pain, reach the cavity at apex of root, which was

formed by the abscess which caused absorption of tooth. Now enter fistula with a large round bur and cut away any ragged edges of process and tooth that you can reach with this instrument, in fact make cavity quite smooth; when you have accomplished this, wash out cavity with boiled water two parts and some antiseptic mouthwash one part; then with a pair of approximal trimmers file and polish end of root. Treat canal the same as in chronic abscess.

Case No. 5. Anterior teeth with fistulous opening. Remove contents and cleanse as described in case No. 2; force a little peroxid of hydrogen through fistula; cleanse this out by the use of cotton on broach until canal is almost dry; use a 50 per cent solution of sulfuric acid as described; dry again; saturate a loose pellet of cotton with oil cassia and place in pulp-chamber, and with a hot air syringe, or ordinary chip-blower heated from the alcohol lamp, drive the oil into the tubuli until none remains on the cotton, which is indicated by the cotton turning brown. Direct patient to exhale while you force the air from syringe into canal, and thus avoid irritating your patient's throat, should you not have the rubber-dam adjusted, and making him cough, which will cause delay and possibly dampen the canal; remove cotton, force a couple of blasts of hot air into the open canal, which will drive out all surplus oil and dry the canal; now with cotton twisted on broach and dipped in chloroform cleanse pulp-chamber of excess oil, dry once more, and fill canal immediately, forcing filling through fistula.

Case No. 6. Extirpation of pulp and root filling accomplished at one sitting. I cannot perform this operation except upon a chosen few; they are of a peculiar type, and their general build indicates their nature, one which will endure any amount of punishment with but little retaliation. The operation is performed in the following manner: Adjust rubber-dam, dry cavity, and with sharp excavating burs and excavators clean cavity of all debris; apply chloroform for a minute or two, and while this is in place prepare a pledget of cotton with a saturated solution of hydrochl. cocain crystals dissolved in oil of cassia; remove cotton from cavity and apply the pellet last prepared. Now with hot air from the chip-blower drive the cocain into the pulp, and when all the fluid is thus forced out of the cotton, remove, and with a sharp bur revolving at a high rate of speed open the pulp-chamber to its greatest diameter; if pulp is sensitive, repeat cocain; then take a small broach and insert it at the side of pulp

close to the canal, and push it gently but firmly to the apex with a straightforward movement; rotate the broach from left to right until you feel that you have a good grip on the pulp; then with the same rotary motion and a pull, you will remove all the remaining portion of pulp, with but little if any pain. Hemorrhage will follow this, which is easily checked by cotton wrapped on a broach and dipped in chloroform and applied to canal down to apex, which will coagulate the ruptured blood-vessels. Now dry canal and fill immediately; you can follow this treatment with any mode of crown-filling you choose at the same sitting, without pericementitis following.

Filling root-canals without a fistulous opening. Have cavity and canal free from all foreign substance, thoroughly dry and aseptic. Taking up the root filling from each case as I left it in our narrative of treatments, I would proceed to fill the canal by dipping one of these fine canal pluggers in thin chloro-percha and inserting it at the side of canal, and slowly pushly this up to the apex, keeping it on the same side of canal all the way, thus allowing the air to escape from the canal. When the apex is reached, rotate the plugger until the end of canal is sealed, and proceed with the same operation until you have canal two-thirds full of chloro-percha. Now take a gutta-percha point, and clip the sharp end off until you have rather a stiff point, and grasping the cone at larger end with a pair of college pliers, force it into the canal as far as possible, having the cone cold so it will not bend easily. If this does not fill the canal, insert another and another until the canal is full. Then with a hot instrument cut off all the gutta-percha and chloro-percha that has pushed out into the cavity of tooth, and with chip-blower warm the canal filling, and with larger pluggers force the filling up as far as you deem necessary to form a perfect obliteration of all space in the canal; the chloro-percha will assist very materially in sealing all little spaces. Now cap this root-canal filling with a good cement, and you have a good foundation upon which to build a filling.

Filling canals with a fistulous opening on the gum. Taking up the work where we left the treatment, you proceed as directed in above filling of canal to the point where we stop at two-thirds the way up the canal with chloro-percha; fill canal full of chloro-percha, and with a pumping motion force it through the foramen. Fill apical space and continue to force the same by adding more chloro-percha until it is forced out at the fistula. Now fill canal with

gutta-percha points as directed. When this is accomplished fill a syringe with tepid water and some antiseptic mouthwash, insert the nozzle in fistula and force the contents of syringe into the cavity in process, which will cause all the surplus filling to be forced out at the side of syringe.

I do not believe in the use of copper, wood, lead, silver or gold wire points, nor do I believe Salol by itself will ever make a good root-canal filling. I do believe that a good practice would be to line the canal a few days after you had sealed the apex, and am sure no trouble would arise with damson resin and paraffin, equal parts. This would seal the tubuli and keep moisture from entering, and if such should occur, would avoid disintegration of a gutta-percha root-canal filling. Discoloration never occurs if root-canal be properly filled before the tooth begins to discolor.

OSTEOMA OF THE LOWER MAXILLA.—M. Lejars, in *Bulletin Medicale*, quotes the case of a woman, aged 42. For about ten years she was troubled with a small indolent tumor situated at the level of the ascending ramus of the mandible; latterly this tumor had increased to the thickness of a chestnut and stood out very prominently. It was hard and formed part of the bone; quite recently it had caused her severe pain. No dental anomalies were present. The ablation was accomplished by means of the chisel and mallet; the histological examinations showed that it was formed of pure osseous tissue. A cure resulted.

ILLINOIS COCAIN LAW.—The State Legislature of Illinois has enacted the following law respecting the sale of cocain: Section 1. Be it enacted by the People of the State of Illinois, represented in the General Assembly. It shall not be lawful for any druggist or other person to retail or sell or to give away any cocain, hydrochlorate or other salt of or any compound of cocain or preparation containing cocain, or any salts of or any compound thereof, excepting upon the written prescription of a licensed physician or licensed dentist, licensed under the laws of the state, which prescription shall be filled only once: Provided, that the provisions of this section shall not apply to sales in the usual quantities at wholesale by any manufacturer or wholesale dealer, when such manufacturer or wholesale dealer shall have affixed to the box, bottle or package containing such cocain, hydrochlorate or other salt or compound of cocain or preparation containing cocain, a label specifically setting forth the proportion of cocain contained in any preparation. Section 2. Every person who shall be found guilty of violation of the provisions of this act shall, for the first offense, be fined a sum not less than ten dollars, nor more than fifty dollars, and for each subsequent offense not less than fifteen dollars, nor more than two hundred dollars, or imprisonment in the county jail not exceeding thirty days, or either or both, in the discretion of the court.

Digests.

PATHOLOGIC CONDITIONS OF THE PHARYNX AND CONTIGUOUS STRUCTURES DURING EARLY CHILDHOOD —PRIME FACTORS IN THE ETIOLOGY OF MALFORMED MAXILLÆ AND IRREGULAR TEETH. By W.A. Mills, D.D.S., Baltimore, Md. Read before Dental Section, American Medical Association, Philadelphia, June, 1897. The physical functions of the nasal cavities are, viz.: They elevate the temperature of the inhaled air, give it moisture, and purify it by arresting all particles of dust and other substances which it may contain. They act as resonance cavities for the voice, and are also the seat of the sense of smell. A professional experience of more than twenty-five years has taught us that any inflammatory lesions found in children between the ages of four and twelve, which obstruct these natural conditions, are, in the majority of cases, the chief agents in the causation of malformed jaws and the consequent abnormal alignment of the teeth. We cite the following case in our practice:

A boy, age seven years, was brought to the office to have a tooth filled, which was supposed to cause pain in the right ear and right angle of the inferior maxilla. There was almost complete obstruction of the nasal cavities, face pale, anemic and haggard looking, features contracted or pinched at the angle of the jaws and beneath the malar processes, giving the characteristics of a mouth-breather. On examination we found a small cavity in a molar tooth, which in a manner could have caused the pain. This was filled but gave no relief. The tonsils were greatly enlarged, almost meeting at the median line. Deglutition was both difficult and painful. On examining the superior maxillæ we noticed a very perceptible contraction on both sides, anterior to the first permanent molar tooth, with a decided inclination of the roof of the mouth to become elevated. We informed the patient's aunt of the state of affairs, with the assertion that unless something heroic was done quickly, and by a rhinologist, very serious consequences would be sure to follow. Six months later the patient returned to the office. A specialist had been consulted and he had removed some adenoid growths and was still reducing the tonsils with the galvano-cautery. We found a bright and rosy-faced boy with normal respiration, and imagine

our surprise when upon examination we found no signs of the former contractions of the jaws or rising of the arch, but all outlines were normal.

This particular case demonstrated that either the enlarged and diseased tonsils or the adenoid vegetations, or both, were the prime factors of the causation, not only of the malformations of the maxillæ but also the oral respiration. If a correct diagnosis had not been made, and only palliative treatment been given, there is no doubt that a case of V or saddle-shaped arch would have been developed, with irregular teeth as concomitants, especially as patient's parents are full-blooded Germans and have large jaws and teeth.

The starting point in the majority of these cases has its origin in some slight irritation of the mucous membrane of the throat, especially the tonsils. We would urge upon the medical and dental practitioners the importance of being ever on the alert to discover the first sight of any inflammatory manifestation in the throat or nasal cavities of children, as so many lesions are prone to develop along the lines of the respiratory passages without in themselves showing any very acute symptoms; and if permitted to continue without proper treatment of the disease and the malformation, they will in some cases defy all remedial agencies. Dr. M. H. Omyer says: "It is my opinion that an inflammation of the tonsil and surrounding tissue will cause tention of the palato-pharyngeal and palato-glossus muscles; if this be so, they would naturally pull the lateral portion of the arch downward and inward; especially with children when their bones are soft and yielding."—*Ohio Dental Jour., Sept. 1897.*

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QUEER THINGS ABOUT MANKIND. Few people are aware of the wonderful engineering skill and ingenuity with which their bodies are constructed. If patents were taken out for all the clever contrivances to be found there, it would probably keep the staff of the Patent Office going for three months.

Who would think that in his eye there is a block and pulley, or "tackle" as the sailor calls it, as complete and efficient as that with which a ship hoists her mainsail? There it is, however, and whenever you look at the tip of your nose the muscle that moves your eyeball works in it. There are several of these pulleys in the body.

Another clever dodge in Nature is shown in the bones of the face. Accomplished engineer that she is, she always uses the smallest

quantity of material sufficient for strength. In making the bones of the face she wanted a large surface to which to attach the muscles; but as she didn't wish to encumber us with heads as heavy as an elephant's, she burrowed hundreds of little holes in the bones, called air-cells, and thus secured strength, large surface and lightness. In the same way she made the long bones of the legs and arms hollow in the middle. What a saving this is may be understood from the fact that a hollow shaft of bone or iron—or any other substance—is about twice as strong as a solid shaft containing the same quantity of material.

When you get a severe cold you are apprised of the presence of another cunning device—the Eustachian tube. This tube is two inches long and passes from the inside of the ear to the back of the mouth. It was put there to keep the air at the same pressure inside the drum as outside. Otherwise there would be no vibration of the drum and you would be almost stone deaf. When you get a bad cold this tube sometimes becomes inflamed and blocked, and you are made quite deaf.

Adam's apple, if it was that fruit which brought into the world all our woe, is now a useful organ. It serves as a sort of storage cistern of the blood for the supply of the brain. When the heart sends up too much blood Adam's apple intercepts it, or part of it; and when the direct supply from the heart temporarily runs short Adam's apple gives up its store.

The liver is a most wonderful organ, containing facilities of several kinds. But perhaps the most wonderful thing in it is that part set aside to look for and arrest poisons.

All the food that you eat, except the fat, has to pass through the liver before going to the heart and body generally; and in the liver there appears to be stationed something in the nature of custom officers, who examine every bit of food and remove from it all substances dangerous to the body. But they are capable of dealing only with the small quantities in ordinary food and when you eat poisonous mushrooms or mussels they are quite overpowered.

Another protection from danger is afforded you by the supply of a small quantity of hydrochloric acid to the stomach. There are little machines in the stomach specially designed for the manufacture of this acid from the salt you eat, and they are so regulated that they produce a quantity equal to one-fifth of one per cent of

the contents of the stomach. Experiment shows that this is exactly the percentage required to destroy the thousands of microbes that we swallow in our food. But for this thoughtful provision of Nature we would probably get a new disease with every meal.

Most people know the use of the epiglottis, which saves us from imminent death every time we swallow a bit of food. At the back of the mouth the air-passage and food-passage cross each other, and whenever we swallow food it would inevitably go into the windpipe and choke us, only that this little body pops down and covers the entrance. It is like the policeman who regulates the traffic where streets cross.

The semicircular canals, for centuries a physiological puzzle, are an extraordinary device for enabling us to keep our balance. They are little channels, hollowed out, in connection with the ear, in the bones of the head, and partly filled with fluid lymph. As our head or body sways the fluid moves, acting like a spirit-level, and informing the brain whether we are standing on the perpendicular or at a dangerous angle.

One of the most valuable of all inventions made for our comfort and safety is the perspirative gland. It acts like the safety valve of a boiler, letting off heat when we are becoming dangerously warm. If our temperature rose seven or eight degrees we should not have twenty-four hours to live. The value of the sweat-gland is therefore obvious. In fact, without it a football or cricket or rowing match would be out of the question, and we could not safely walk at a speed of more than a quarter of a mile an hour. Nature has taken good care, however, that we should not run short of these useful organs and has given us no less than 2,500,000 of them.

So inventive was Nature when constructing our body that the difficulty is to stop enumerating her clever ideas. She saw that we would very soon grow tired if we had to be held up by two legs by means of muscular effort, so she made the hip-joint air-tight, and the pressure of the air alone keeps the leg in its place. At the same time, although she has not discovered ball-bearings, she made the ball of the leg bone and the socket of the hip so smooth and oiled the joint so well that the friction is practically nothing.

When the spinal canal in the backbone was made, great pains had to be taken, for, while it consists of many pieces and is freely movable, it contains the precious spinal cord, one nip of which

would be fatal. The measurements are so accurate that there is no danger of such an event. Wherever there is much and free motion, as in the neck, the canal is large and open and a nip is impossible.

Again, the heart and lungs are, of course, the very basis of our life. They are in constant motion, and if allowed to rub against the chest walls around them, they would either get inflamed or wear away by friction. Nature has, therefore, surrounded them with a double sac, and between the outer and inner layers of it she has placed a quantity of lubricating fluid.

But the most remarkable of all devices is that for splicing broken bones. The moment a bone is broken a surgical genius is at once dispatched from the brain to the spot. He proceeds to surround the broken ends with a ferule of cartilage. This is large and strong, and takes quite a month to complete. When the two ends are held firmly and immovably in place by the ferule, this mysterious surgeon begins to place a layer of bone between them and solder them together. And when the layer is complete and the bone securely welded he removes the ferule or callus, just as the scaffolding is removed from a finished building. Often a bone does not get broken for two or three generations, and yet this power to form the callus and knowledge of how to do it is never lost.—*Scientific American.*

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VESICATION PRODUCED BY COCAIN.—Broeckaert recently observed a remarkable vesicant action due to application of cocain solution. He had been consulted by an army officer on account of a slight obstruction caused by a certain degree of hypertrophy of the inferior turbinated bone. In order to anesthetize the mucous membrane he was about to apply cocain, when the patient interposed and declared that it would produce dangerous effects; that once an application had been made to the skin at the seat of a boil, and in the course of a few hours an eruption occurred which he could compare only to the effect of a fly-blister. Broeckaert could scarcely credit the statement, but let fall a drop of ten-per-cent solution upon the man's forearm. Two days later the man returned and surprised him by showing an eruption of small vesicles, the extent and form of which corresponded exactly to the spot upon which the cocain had been dropped. To dissipate all doubt he tried a new and decisive experiment. The patient's eyes being closed, he applied to one arm a

drop of a freshly prepared cocain solution and to the other a drop of distilled water, the patient believing that both were solutions of cocain differing only in strength. The experiment corroborated the patient's former statement; the cocain solution alone caused vesication. The effect in this case was in many respects comparable to that of cantharidal plaster. At the end of a certain time the vesicles dried up, but they left behind them a slightly pigmented cicatrix, proving that the irritation had been comparatively strong and had even led to the destruction of some extravasated red corpuscles. Curiously enough, corrosive sublimate, carbolic acid, iodoform, and other more or less irritant substances had no such effect upon this man. He was robust and in good health, but had previously had some arthritic manifestations.—*Revue Inter. de Rhinologie.*

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DRAINAGE AND IRRIGATION OF THE ANTRUM. By E. L. Townsend, D.D.S., Los Angeles, Cal. Read before Pacific Coast Dental Congress, July 13, 1897. Drainage, as applied to the antrum, means the opening and insertion of a tube into the antrum, allowing the contents to drain into the mouth, a practice that fails to accomplish the result desired; for, if the tube is short enough to allow the secretions to drain through the tube, granulations form about the end of the canal, producing more or less soreness and eventually closing the end of the opening. If the tube is long enough to prevent granulations forming over the end, it then prevents the very object it is intended to accomplish. Permanently fastening the tube to adjacent teeth is open to the objection that pus will seep between the tube and canal, thus becoming a source of irritation and infection, and establish a place that it is impossible to properly cleanse. And even if the drainage tube accomplished all that it is intended to do, it yet remains an undesirable method of treating these cases, on account of the disagreeableness of a constant dripping of pus into the oral cavity. A cleaner and more comfortable method is the complete plugging of the canal—the removal of the plug and a thorough irrigation of the antrum.

In making the opening into the antrum, a hole of sufficient size should be made to accommodate a plug made from No. 5 wire, standard gauge, having plugs and syringe nozzles drawn to the same gauge. In opening the antrum the hole should be made as direct as possible, and usually at a point occupied by the first molar.

After the hole has been made, the plug is inserted, an impression taken, and the plate made, which may carry the teeth or not, as circumstances dictate. During the interval between the taking of impression and insertion of the finished plate, a temporary plug should be worn, so that the hole shall not contract. This appliance soon becomes comfortable and is worn with no greater inconvenience than the ordinary denture, effectually preventing the contents of the antrum reaching the mouth, and upon its removal affording an opportunity for thoroughly cleansing the parts.

An ordinary fountain syringe, holding a quart or more, with a point bent to a right angle, is the most effective apparatus for irrigating the antrum. The syringe nozzle should be inserted into the opening, and the patient's head lowered to a point that will prevent any of the fluid running into the throat. A quart or more of slightly saline or alkaline solution is run through the antrum and out of the nose, thus completely washing the cavity and nasal passage. I have found it useless to try to cleanse the cavity by a spray or small amount of water. What it needs is a flood, something that will loosen the adherent, purulent mucous secretion and carry it away. The patient can attend to this, and irrigate as often as the conditions require, which ordinarily is from two to six times a day. It will be noticed that this treatment does not contemplate a speedy cure, but the preparations are made for a permanent opening and a lengthy treatment of the disease. In fact, I consider that the benefits arising from the opportunity to effectively cleanse the parts about the opening of the antrum into the nose compensate for the inconvenience and trouble. As most of the cases arise from a catarrhal condition, this gives an opportunity for treatment not offered by any other method, and so far as it has come under my observation it has been effective and has produced what is ordinarily termed a cure.—*Pacific Stomatological Gazette, Sept. 1897.*

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HINTS IN HOT WEATHER. By a Lazy Man. If you add two per cent of silica to gold plate to be melted, you can accomplish it over the flame of a common candle.——Apply powdered or lump resin to the driving belt of your engine to prevent it slipping. ——If you remove gum blocks from the flack and rub the joints very lightly over fine sandpaper before replacing them, they can be packed much cleaner. Where there is any vestige of wax there will

cleansing the pulp-canal, filling it perfectly, dissecting away the sac, roughening the surface of the bone sufficiently, and promoting healthy granulation to fill the cavity. Another treatment is by extracting the tooth; this course, which is so often considered sufficient, does not always effect a cure. Whenever a decomposed pulp exists a cavity in the jaw will be found, at or near the apex of the root. The exception, I believe, is only when the peridental membrane has not been inflated so as to produce an abscess sac, but has immediately succumbed to the septic influence of the pulp, the gas passing through the canals of the bone to some remote part, and there forming the tumors. This may be so gradual that the attention of the patient has not been called to it, except by the soreness and swelling that might result from the primary attack, and is recalled by the patient only when questioned about it. These cysts may be simple or multiple, and I have seen as many as three in one-half of the upper jaw.

Whenever the pulp of a tooth is found to be devitalized, and is not removed and filled as suggested, you can depend upon its causing trouble; then no time should be lost in preventing infiltration or increase of the area of the disease. At this writing I have under treatment three cysts of extensive proportions, which are traceable directly to this cause. In the first case the swelling appeared in the nose, plugging the left nares, along with a perceptible enlargement between the internal canthus of the eye and the wing of the nose. Searching for the cause, I found the pulp in the first bicuspid dead and putrescent. This tooth was extracted by the patient's dentist, who claimed he did not find it abscessed, and the tooth, being of good quality, was cleansed, filled and replanted. The swelling somewhat diminished, but recurred in two years much increased in size. Examination of the alveolar process showed a normal condition. An opening was made into the tumor under the lip, in line with the wing of the nose, from which exuded a half ounce of thick greenish mucilaginous fluid. The sac had gradually increased until the substance of the superior maxillary bone had been destroyed from the point where I entered the sac to the nasal process, leaving only the periosteum intact. Even the inferior turbinated bone was destroyed. The walls of the nares offering the least resistance, the tumor gradually followed that direction until the left nares were completely plugged. The sac was curetted and

be unclean joints.——Wash your amalgam with a few drops of sulfuric acid added to water.——For sterilizing instruments, boil them for five minutes in a one-per-cent solution of carbonate of soda. It will preserve them from oxidation, as well as make them aseptic. I like the Empire sterilizer.——Do not use spunk for drying cavities unless you are sure it leaves no debris behind. Do use it often instead of the rubber dam. It is handy on the tweezers as a conveyer for large amalgam filling in posterior cavities. Very useful, too, to smooth off ends of filling.——Oxyphosphate is the best thing with which to repair broken teeth of plaster models, if you can wait an hour till it sets. Cut strips of the various grades of sandpaper you use with the split mandrel of your lathe. Fit them in tight. Slip them off. Glue them, lay aside for use. Also cut down corks to cones, glue on pumice or corundum stone. A very coarse English corundum stone makes one of the best coarse polishers.——Keep your corundum wheels out of the hot sun.——Dr. C. H. Land, of Detroit, once told me that he found heavy pasteboard made a capital vulcanizer packing, and that where vulcanizers leak, dusting on corn starch will stop it.——When you use alcohol to cut or sharpen a corundum wheel, do not attempt to use it until it is absolutely dry.——To keep your solder in place, add a little gum arabic to your flux, and rub with the borax and water on the slate.——To make sticky wax for holding clasps in place, use resin two parts, beeswax one.—*Dominion Dental Journal, Oct. 1897*

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TUMORS RESULTING FROM SEPTIC PULP OF TEETH. By G. Lenox Curtis, M.D., New York. The object of this paper is to illustrate several of the most prevalent tumors of the jaw, evolved by septic material discharged from the decomposing pulp of the teeth. It is the intention to speak of them from a practical standpoint, and the desire is to inform those interested how to treat and prevent their recurrence.

Experience leads me to believe that the origin of fully ninety per cent of all tumors of the jaw, face and neck can be traced to diseases of the teeth, and in many cases to the septic pulp. The most common of these tumors is the alveolar abscess, the contents varying from mere gas to thick pus. The treatment has been described so often that I shall not here repeat it, further than to say—remove the cause and prevent recurrence. This can be done by

could cite many cases of adenitis and inflammation of the ducts, also the bursa of the floor of the mouth, of osteoma and similar ailments, traceable to septic diseases of the pulp of the teeth, but I feel that it is not necessary to here dwell, or to impress you further on the importance of prompt and thorough removal of any such influence in the mouth.

In February, 1888, I operated on a case which illustrates clearly the lack of judgment of the dentist who filled a cavity over a septic pulp. The patient had the inferior left first molar filled with amalgam, from which the pulp had not been removed. The day following this filling the jaw around the tooth became sore and the face swollen. This condition continued to increase for several days. For two or more weeks she suffered much pain, when the swelling gradually diminished, leaving an indurated tumor near the apex of the roots, which continued to increase in firmness and constantly distressed the patient. At times the pain was quite severe. From the first of the trouble the patient was advised by the dentist to have nothing done with the tooth, as it was not at fault, while the physician and others advised its extraction. Two years later the patient consulted another dentist, who extracted the tooth, and found it in the condition as heretofore stated. This, however, did not check the growth of the tumor, which gradually increased in size until the face was considerably deformed. I was able to enucleate the tumor, and from its size could readily understand that the jaw-bone was nearly severed, there being not more than a quarter of an inch of the inferior border remaining, so completely had the growth of the tumor destroyed it. The tumor was osseous. The operation was done from within the mouth, thus avoiding the usual scarring, so disfiguring when the opening is made through the face. The case had been diagnosed a "sarcoma" and removal of half of the lower jaw was advised.—*Dominion Dental Jour., Oct. 1897.*

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SUCCESSFUL METHOD OF FILLING FAST DECAYING TEETH OF THE YOUNG AND ANEMIC. By C. Bunting Colson, D.D.S., Charleston, S. C. Read before White Mountain Meeting, July, 1897. It is my belief that we are on the eve of discovering a specific which will prevent disintegration of the teeth of the young and of those in poor health, other than by the merely mechanical and prophylactic measures of to-day. Before

the cavity treated and healed, care being observed to force back the periosteum so that the normal opening of the nares was restored.

The next case was where the pulp in the left central incisor had for many years been dead, presumably from a blow, as there was a slight fracture on the cutting edge. The pulp was opened into from the palatal surface of the tooth, and fully two drachms of pus flowed therefrom. The pulp-canal was then cleansed and permanently filled, an incision made through the gums and periosteum from the labial surface, exposing the end of the root of the affected tooth. A deluge of thick, yellowish fluid flowed into the mouth —in all two ounces. It was found that all the bone extending from the right lateral to the left first bicuspid to the anterior boundary of the antrum and the nasal process was completely absorbed, leaving only the periosteum intact. There was also considerable bulging of the left nares and the roof of the mouth. This almost plugged the left nares; in fact, the floor of the nose was considerably elevated and the bone under it was completely destroyed. Fully two-thirds of the roots of the central incisors, left lateral cuspid and first bicuspid teeth penetrated this cavity. The patient never realized any trouble from this tumor, except occasionally for several years a little tenderness on pressure at the side of the nose, until about one month since, when the face suddenly swelled and was diagnosed by this dentist as the result of an alveolar abscess attached to the root in question. When the sac of the tumor was dissected away, it was found that immediately surrounding the affected tooth there was an independent sac, which was similar to that found in alveolar abscess and which contained the pus referred to.

The third, which was still more extensive, involved all the alveolar process of the left superior maxillary, from the third molar to the lateral incisor and extending to the molar. The face was considerably deformed by an enlargement below the molar about the size of a small hen's egg, which was apparently as firm as bone. Nearly the entire antrum was found occupied by this tumor, the contents being almost a jelly, of a slightly yellowish color, in quantity about three ounces. The etiology of the tumor I believe to be traceable to the back roots of the second molar, which had many years remained in position and were found penetrating the cyst.

These tumors are, fortunately, not numerous, and would be much less so if dead teeth were properly treated or promptly extracted. I

explaining my own methods of procedure, I will discuss briefly some of the processes and materials which have given us particularly satisfactory results in the mouths of the young and anemic, and especially of nursing mothers. The most useful materials, here named in the order of their usefulness, have been soft gold, gutta-percha, tin, lead, cohesive gold, oxyphosphate of zinc and oxychlorid of zinc. The various processes upon which we have depended have been fillings with one or more of the above materials; cleansing or polishing of the enamel; or completely surrounding the teeth with metal as with a band or crown, thus protecting them from the secretions of the mouth. Therapeutically we have advocated prophylaxis by friction with the brush, silk, mouth lotions and dentifrices, and cauterizing with nitrate of silver of surfaces preventing superficial caries.

In which direction shall the dental student of the future seek for that specific which shall be to dentistry what Jenner, Pasteur, Koch, Roux and others have given to the general practitioners of medicine? Preventive dentistry may eventually rely upon a process; certainly not upon any particular filling material. It might be possible to permanently preserve human teeth if a method could be discovered by which we could electrically deposit gold, silver, nickel or platinum over all the surface of the teeth of the young, preventing by such deposit caries in fissures, and the attacks of microorganisms; but as we can scarcely hope for this, and as filling materials can only retard and partially prevent further progress of rapid decay, and as such disintegration is pathological, our future dependence must be upon therapeusis.

It has long been noted that pure soft gold apparently acts better than any other material used in preventing subsequent disintegration of the teeth filled, even where the manipulation has been faulty. It is not uncommon to find a leaking or loose gold filling of soft gold remaining in a tooth for years and preserving it, which would seem to prove that its action depends upon some therapeutic property and is not due to perfect adaptation. This cannot be said of cohesive gold.

We have similar preservative properties in tin and lead, but it is not always wise to use these materials in the teeth of the young because of the discoloration which they frequently cause. Copper amalgam has given good results under certain conditions, of which,

however, as yet we know too little to be able to utilize this material, which the lack of knowledge as to when and where to use it renders most unreliable.

We have fairly good results from gutta-percha as a temporary expedient, and here again we have an action which is apparently therapeutical rather than mechanical. When well manipulated, gutta-percha often serves a permanent purpose, and even when poorly placed frequently gives better results than could be obtained with any other material.

Therapeutics has furnished us with some good preparations for the prophylaxis of the mouth, but none are specific, and the mouth being an ever washed cavity, the effect of the most powerful agent is soon lost. In many mouths the teeth are covered with a viscid, thick, clinging deposit, not very soluble and not easily removed, and which is not penetrated by any ordinary or even extraordinary germicide or antiseptic. Wash a child's mouth with the most potent of these agents yet known, and we still find under the felt-like pads an abundance of thread-like bacteria.

We have several mechanical processes which are valuable in combating the early stages of decay. When first detected, if we thoroughly cleanse the surface and polish the enamel with hardwood polishers, we are frequently able to abort the process of decay. We also have a reliable agent in nitrate of silver, especially for deciduous teeth, where it is of great advantage in retarding the progress of disintegration of the enamel, and, except that it leaves a coal-black stain, it would be exceedingly valuable in dentistry.

I will now briefly describe my method of preserving rapidly decaying teeth in the mouths of patients between the ages of ten and twenty, and also in young mothers and anemics. We find similar conditions in nearly all these cases, except that in children we have a larger pulp cavity and less dentin between filling and pulp. Many years ago I became impressed with the idea that the enamel and dentin may be affected far beyond the point usually reached with our excavators. I was forced to this conclusion by observing the recurrence of decay around and beneath fillings. I have frequently cut away more tooth substance than is usual and obtained success, though I have occasionally lost a pulp from the proximity of the filling to that organ, even when care had been taken to line the cavity. I have also found that in many of these cases in the

course of time the vitality of the pulps became impaired, the pulps eventually dying. I therefore became convinced that it was not altogether the proximity of the cement lining nor of the gold which caused this, but rather the infected condition of the dentin between the filling and the pulp, and I have proven the correctness of this theory by obtaining good results through proper treatment prior to filling. Having satisfied myself that the dentin of decayed teeth is affected more deeply than is usually believed, I became assured that soft gold would be the best material for preserving the teeth and preventing subsequent recurrences of decay.

My present method of filling rapidly decaying teeth is as follows: I demand sufficient space in which to work. If the cavities are in approximal surfaces, I open by packing cotton, cork, or sometimes rubber, and then keep the teeth apart with a peg of wood until the soreness leaves. With the rubber-dam adjusted and the cavity well dried, I attack the enamel edges with a very sharp chisel or excavator, but prefer to use a small, fine cut fissure drill or bur. I cut back the enamel well before I proceed to excavate the cavity. I excavate the dentin with sharp excavators, using only hand instruments, as they are better controlled, and less painful if sharp. After as thorough an excavation as judgment will permit, we are frequently compelled to leave a small pad of decay at the bottom of the cavity for fear of exposing the pulp. Believing that the apparently normal dentin and enamel are not so healthy as they seem, of course it is not satisfactory to leave this pad of decay, which is composed of particles of brokendown dentin, microorganisms and other septic material absorbed from the saliva; nevertheless, we are forced to do so. To fill over it with any material without first taking necessary precautions would be fatal to the success of the permanent filling. It is the bacteria thus left within the cavity which destroy many teeth, however carefully lined and filled.

After excavating, my next step is to dry out the cavity with warm air—and I frequently do this while excavating as it reduces pain to a minimum—which should be a slow stream of air not hot, but just warm enough to drive back the serum and evaporate the contents of the tubuli to some extent. I then bathe the cavity with a drop of a caustic soda solution which is instantly sucked up by the dry tubuli. The soda penetrates the tissues of the tooth to a considerable depth, neutralizing all the acid that may be present in the

tooth itself or in the pad of decay. Again drying this out and applying warm air as before, I flood the cavity with oil of cloves. Why oil of cloves? I have tried nearly all the germicides that I felt justified in experimenting with, and I find that oil of cloves is the most suitable and efficient. After absorbing out the surplus with bibulous paper I again apply warm air. Oil of cloves has the peculiar property, when heated to the point of volatility, of penetrating, and will pass deeply into the tubuli and so embalm the substance of the pad that no fermentative action can occur.

Now I return to the enamel border. Treatment of this margin is the most important of the entire process of filling this class of teeth. I employ some original instruments made of carborundum pencils ground down and pointed so that they resemble a well-sharpened lead pencil. I have these of fine grit and placed in porte polishers. With these fine points I grind my enamel well around to the full extent of the diameter of the cavity, so that there shall be no overhang to any portion near the surface. I now trim the extreme outer edge of the enamel, surrounding the cavity to the outer bevel or counter-sink, similar to that which is made in flushing a screw head in cabinet work, but not at so acute an angle. All this is done with the small carborundum pencil points. Then I line cavity with balsam, believing that I seal within the tubuli sufficient essential oil to prevent the development of any fermentative decomposition in the pad. While the balsam is drying I polish my beveled enamel border.

I desire to make a few remarks on polishing enamel, because the practice does not seem to be so generally appreciated as it was twenty years ago. It was formerly the common practice in the treatment of superficial decay, after removing the roughened surface, to polish the enamel carefully, and I have always been impressed with the ability of these fresh surfaces to resist the attacks of the agents of decay, which seem to prefer a roughened enamel surface. When we find decay to be general throughout a mouth, we invariably may note that the enamel surfaces are far from having that high polish which we see in a healthy mouth; therefore, I think it very essential to perfectly polish these enamel borders. I use for this purpose points of hardwood, mostly seasoned hickory and boxwood sharpened like pencils, held in the porte polisher bits. Running my engine at a rapid speed, I polish the beveled enamel borders of my cavity until my mouth-mirror shows me that they shine and reflect

light. This is not difficult nor painful, nor does it require much time, but it is very necessary to a perfect operation.

Bear in mind that I am writing of teeth in which we may expect a recurrence of decay. In such cases I ordinarily use a cement lining, especially in very young mouths, to avoid the necessity of placing gold in contact with the dentin, but this must be done with judgment and depends upon the depth of the cavity. If I use cement I anchor in it several pellets of cohesive gold as a foundation, in preference to deep anchorages, but I do not fill the entire cavity with cohesive gold. When I have the cavity about two-thirds filled I place around, as I work, little pellets of pure soft gold about No. 4, folded from four to six times. These I lay along the enamel borders, and they are held in place by the cohesive gold as it is built over them until I have all the enamel edges of the cavity overlaid by these soft gold pads beyond the bevel. I then complete the filling with cohesive gold and burnish thoroughly.

It may be asked, why not fill with soft gold entirely? The answer is that soft gold fillings to be well inserted require much pressure and malleting. The enamel of the teeth of the young is not dense enough to resist such pressure. Again, I cannot finish to a certainty to the outer edge of the bevel of the enamel with soft gold, and I also wish to restore the approximal relations of the teeth by contouring. Nevertheless, I want soft gold on the beveled polished edges, covered by cohesive gold well burnished down, and I have no fear of bacteria destroying the tooth so polished. A few children may not have the patience or endurance to submit to this method, though rarely am I obliged to adopt any other.

My next favorite filling is gutta-percha, and I prefer the common pink base plate gutta-percha to any of the white preparations, and I use it whenever I can, where its color does not make it objectionable. To fill teeth with gutta-percha, especially in the mouths of small children, is an art and requires as expert a hand as any gold filling, and, although it can be done much more quickly, is difficult. In the posterior teeth I always use it below the gum margin and almost invariably touch the bottom of the cavity, be it enamel, cementum or dentin, with a crystal of silver nitrate, and then insert the gutta-percha. In this manner I have saved teeth which, without the use of the silver nitrate, could not have been certainly preserved.—*Items of Interest, Sept. 1897.*

CORRECTION OF CLEFT PALATE. By William A. Bryant, M. D., D. D. S., San Francisco. Read before Pacific Coast Dental Congress, July 13, 1897. The subject I bring before you to-day is one which receives too little attention by our profession—namely, the correction of cleft palate. This most distressing deformity, interfering as it does with mastication, speech and deglutition, is varied in its extent. The causes of this malady may be classified as congenital, acquired and accidental.

Firstly. The congenital cleft is due to the imperfect closure of the fœtal gap existing between the nasal and the buccal cavities. Many writers ascribe this deformity to different causes, but the theory which has the greatest number of supporters is that of heredity. Malnutrition, scrofula, prenatal impressions and locality are all given as causes. The fissure caused by this non-closure may be varied in its extent. From the simple division of the uvula, the velum may be divided, or the cleft may extend through the palatal plates of the superior maxilla until it reaches the os incisivum, when it deviates either to the right or left side, following the suture between the os incisivum and the maxillary bones, forming a complete cleft. Thus it is exceedingly rare that a cleft is found directly in the median line; it more generally passes to the left. An accompanying evil which is found in conjunction with cleft palate is harelip, or a continuation of the cleft through the soft parts into the nostril. Harelip may be present without cleft palate, but it is exceedingly rare that a complete cleft of the palate exists unaccompanied by harelip. If the failure to close the gap be on both sides alike, double harelip is the result. In many cases the nasal cavity is entirely exposed, the floor being destroyed, and the turbinated bones deformed or only stumps showing their location. The irregularity of the arch is due to the advanced formation of one side and lack of development of the other; thus we very often find an irregular arch with a different elevation of the two sides.

Secondly. The acquired form is due to diseases, and varies greatly in the extent of territory involved. Syphilis and cancer in its various forms being the chief causes.

Thirdly. Under the head of accidental we can place those caused by gunshot, knife and all other causes from violence.

The operative procedure dates as far back as 1764, when Le Monnier, a French dentist, first performed this operation by trimming

the edges of the retracted soft palate and drew them together by sutures, thus overcoming the division in the soft palate. He then made a metallic plate, clasped firmly to the teeth to close the cleft in the hard palate. The operations of Drs. Roux, Pollock, Græfe and others are all more or less modifications of this same procedure. Dr. Warren, in conjunction with the operation upon the velum, raised the periosteum, and trimming the edges of the mucous membrane, closed the gap in this manner.

Dr. Truman W. Brophy's method is the most satisfactory where the case comes under professional supervision in early childhood. Briefly, his method is the contraction of the arch by drawing the two sides with their pared edges together with silver wire, using a lead button molded to fit the convexity of the superior maxillary bones on both sides. These plates have holes drilled, through which the silver wires pass, two on either side; the two wires on the same side are twisted, thus approximating the pared edges of the two halves.

In adult cases this application would not be applicable, and it is to these cases that I would draw your attention. We have within our means the power to do with mechanical contrivances the same good in rectifying the mistake of nature as the surgeon with his skill, and with far less discomfort and pain. Through our attempt at correction no evil aftereffects can follow, and if no improvement is noted with our first effort, the second may be crowned with success. Too much is at once expected by the patient as regards the improvement in speech, and great care should be exercised to have it fully understood that the articulation must be learned, especially lingual and palatal sounds. In the dental correction of cleft palate by the use of obturators to close the opening in the palate, or, as they might be more properly called, artificial palates or vela, ivory, gold, silver and vulcanite have been successfully used. These have mostly been supplanted by vulcanizable soft rubber.

To more clearly explain the methods which follow, allow me to present the case of Mr. S., a patient, thirty-two years of age, with congenital cleft and harelip to the left of the median line, extending fully into the nasal cavity. The vomer had a slight attachment to the left palatal process. Patient was first operated upon for the removal of harelip, and a periosteal flap was formed on right and left sides, with the mucous membrane edges in a line with the cuspids.

Central and lateral incisors missing. Three weeks following he returned. After first cleansing the nasal cavities and mouth of all mucous discharges with a three-per-cent solution of pyrozone, mixed with equal parts of euthymol, I then spray with a five-per-cent solution of cocain, to allay the sensitiveness, allowing five minutes to elapse before taking the impression. Mix the plaster pretty stiff and carry it well up in the nasal cavity. While still soft introduce a long screw into the center of your plaster, to act as a handle with which to withdraw the impress, after allowing it to harden thoroughly. When removed, unscrew the handpiece, trim the roughened external surface, and cut two or more cone-shaped depressions. Place your impress in hot oil and allow it to soak for a few minutes, remove, drain, and replace in the mouth, taking great care to have it occupy its true position in the nasal cavity. Proceed then to take an impression of the hard-palate as you ordinarily would for artificial dentures, but using your plaster thinner, as the palatii muscles are apt to draw away if any pressure is brought to bear upon them. A good plan I have found to avoid the semi-fluid plaster running down the throat is to extend the impression cup with sheet gutta-percha, the edge having an upward turn like a saucer. After filling your cup thus formed, slightly warm the edges of the gutta-percha and carry directly back to the pharynx. Force your plaster forward and upward. Do not attempt to remove the impression until the plaster is firmly set. It is always best to have two impressions. Compare carefully with the mouth and select the one where the lines of the palatii muscles are most clearly defined. Replace the halves of your impression, coat with varnish and make a cast of the nasal portion up to a plane of the true palatine surface. Trim, cut your guides, oil and make the cast of the palate and teeth. By thus having your cast in two portions you have a better opportunity to manipulate the modeling material for the nasal cavity and an independent cast of the palatal portion and teeth. The next step is forming the model for the velum and destroyed tissues. The rule to be followed, and one which will suit all cases, is to make your model resemble as nearly as you can the tissues which nature has failed to provide. Care must be taken to avoid any passage of air between the closed palatal portion and the nasal cavity. By using sheet gutta-percha, and building upon this with wax, a very true model may be had.

Try the model thus formed in the mouth, and after convincing yourself that the edges are close to the palatii muscles and the approximating surfaces well-formed, proceed to flask your case the same as in vulcanizable hard-rubber cases. Extreme care must be exercised in selecting the plaster for this work. Avoid the formation of air bubbles. After thoroughly boiling out the wax and removing the gutta-percha, wipe dry and coat the surface in contact with the rubber with finely powdered plumbago, rubbing it well into the texture of the plaster until a glistening surface results. Make your vents clean cut and posteriorly. Prepare now to pack the flask, which has been previously well baked in an oven. Vulcanizable soft rubber proves most satisfactory. To give increased durability to the hinge of the velum to the plate, imbed in the substance of the soft rubber small platina-gold springs, 35 gauge, ⅛ of an inch in width and about 2 to 2½ inches in length, perforated at both ends. The vulcanizable soft rubber is best manipulated by heating to 230 degrees and then slowly advancing until 270 degrees is reached, retaining that degree for five hours. Cool and remove from the flask.

We have now an opportunity to try our work in the mouth, and if any roughness or undue pressure is found cut it away. In using knife or razor to accomplish this an irregular surface is unavoidably the result. This difficulty may be overcome by using a thermocautery and burning away the irregularities, leaving a smooth surface, non-irritating to the sensitive mucous membrane upon which it impinges.

Before taking the impression for the plate, burn two cone-shaped holes in the obturator on the external surface, to act as guide-posts in connecting the soft and hard plates together. Place the obturator carefully in its true position and take impression of the mouth for the vulcanite plate in the usual manner. Make the clasps strong and wide. Directly over the two points indicating the burnt depressions in the obturator place a piece of 18-k. plate with well serrated edges. Vulcanize.

When the hard-palate plate is finished, drill two holes through the gold plate, passing in a line with the cone-shaped elevated points. Through these are passed the bolts that secure the soft and hard portion of the artificial palate together. Make an incision with an oiled razor in the upper ridge of the nasal portion of the vulcaniza-

ble rubber, drill two holes through in relative position to the bolts. These holes may be enlarged with red-hot wire. Pass your bolts through the holes, retract the cut edges, screw down the nuts of the bolts upon small washers, and your plate is complete.

The gagging sensation, an unavoidable accompaniment, due to introduction of the foreign velum, is very readily overcome by using a gargle of euthymol, one part in five of water. Absolute cleanliness should be enforced upon patient, a disinfectant wash used, and plate soaked at night.—*Pacific Stom. Gazette, Oct. 1897.*

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NOTES ON VARIOUS FORMS OF THE ARTICULATION OF THE UPPER AND LOWER TEETH. By J. E. Grevers, Amsterdam. Read before Odontological Society of Great Britain. Having entered upon an investigation into the anatomical changes in certain deformed upper jaws, and not finding sufficient material in the anatomical museum of Amsterdam, I visited those of Vienna and Paris and their museums of anthropology, and it was while looking over their extensive cranial collections that the question of the occlusion of the teeth was forcibly put before me. A certain deformity which specially interests me at present is also marked by a certain abnormality in the occlusion of both upper and lower teeth, and in searching for examples of this it was but natural that other variations than the one I was looking for would come under my observation.

Variations in dental occlusion were frequently met with and to even a superficial observer it became evident that all the variations could be reduced to a limited number of groups. In looking over the dental handbooks, I found almost all of the varieties more or less fully described, but there seemed to exist an uncertainty in their nomenclature which might cause confusion, and I felt once more the urgent need of a terminology which would be definite, concise and, if possible, universally applicable. An attempt in this direction had been made by Carabelli in 1844. In his "Systematic Handbook of Dental Surgery" we find an attempt towards a universal nomenclature; and again, in 1891 we find another by Sternfield in the first volume of Scheff's "Handbook of Dentistry." Both these classifications I have applied and compared their usefulness.

Carabelli divides the variations into six groups: I. Mordex normalis = normal bite. II. Mordex rectus = edge to edge bite. III.

Mordex apertus = open bite. IV. Mordex prorsus = prominent bite. V. Mordex retrorsus = short or reverse bite. VI. Mordex tortuosus = cross bite.

At first glance this classification would seem to meet all requirements, but on closer observation and on comparing one group with another this nomenclature proved to be unsatisfactory and in some cases worthless. For instance, under the fourth group (mordex prorsus), Carabelli ranges a prominence of the upper jaw and also a prominence of the lower teeth, not combined—but each separate conditions of things which cannot be said to be similar. The next group (V. Mordex retrorsus) is in one sense complemental to the preceding and on the other hand opposite to it. We find in this group collected cases which are called edge to edge bite and cases of projecting lower jaw.

In the article in Scheff's Handbook Sternfeld introduces a nomenclature which has for its basis certain expressions which are used in anthropology. He recognizes two classes of dental occlusion, a physiological or ethnological and a pathological. The first or ethnological comprises the following sub-forms: I. Orthognathia dentalis = normal bite. II. Prognathia dentalis = prominence of both upper and lower jaw. Prognathism. III. Orthognathia dentalis = edge to edge bite (as Egypt Celt). IV. Progenia dentalis = slightly underhung, projecting lower jaw (as Frisians). The second or pathological class is subdivided into: I. Orthognathia pathologica dentalis. II. Prognathia pathologica dentalis = undue prominence of the upper jaw. III. Orthogenia pathologica dentalis. (Both forms not described.) IV. Progenia pathologica dentalis = undue prominence of the lower jaw, underhung. V. Opisthognathia pathologica dentalis = retreating upper jaw. VI. Opisthogenia pathologica dentalis = retreating lower jaw.

When the abnormality is limited to the upper jaw the suffix *'gnathia* is used and *'genia* to the lower jaw. The prefixes *ortho—opistho—pro(s)*—express the position of the teeth, whether straight, backward or forward. It seems to me to be very questionable if not objectionable to make use of terms which in another branch of science possess definite meanings, and to apply them differently to special and pathological cases. Both clearness and definiteness of expression must suffer from this. We find a striking example in Sternfeld's classification, sub. II. In his *prognathia ethnologica* we

learn that both upper and lower jaws are prominent (prognathism), and in this he is in conformity with the teachings of anthropology. It appears to be quite clear, and he acknowledges this—*vide* II. Prognathia ethnologica—that by prognathism is generally understood the projection of both upper and lower jaw with a normal dental occlusion such as we see typified in the lower races.

To apply the term prognathia—even with a restriction such as pathologica—to instances of projecting upper jaws only seems to me illogical and misleading. The terms—pro-, ortho-, opisthogenia, however enticing, appear to me to be no less objectionable, for at the present day anthropologists are still far from being unanimous as to the meaning of these terms. The term *progenia* originated with L. Meyer, who had found among the inmates of insane asylums typical cases of projecting lower jaws, which to him were pathognomonic. In studying this little paper of Meyer, and in looking over the drawing which he gives of his crania progenia, it seems to me that his description does not tally with the picture and leaves some doubt as to the real meaning of the word. This uncertainty becomes stronger when we read Virchow's contribution and there find depicted what he considers to be progenia. But a projecting lower jaw certainly cannot be considered to be pathognomonic for imbecility; this condition of the lower jaw is also met with in otherwise perfectly sound persons.

In 1881, Iszlay, of Budapest, proposed a new nomenclature, which seemed to me to be not only a correct one, but also to be perfectly logical and highly practical. To do away with the misnomer articulation of the teeth, Iszlay substitutes the word *odontharmosis*. To determine the variations in odontharmosis, it is desirable to find some fixed or quasi-fixed point, and for this Iszlay has selected the upper jaw. According to the position of the lower teeth we have the following possibilities in odontharmosis. I. Enarmosis = projecting upper teeth, normal bite. II. Epharmosis = projecting lower teeth, underhung bite. III. Prosharmosis = edge to edge bite. IV. Opharmosis = open bite. V. Dicharmosis = cross bite. VI. Tyrpharmosis = mixed up bite.

Sub. I. Enarmosis. The upper teeth fall just in front of the lower ones, leaving hardly any space between the labial surface of the lower and lingual of the upper teeth, thereby covering the lower teeth but for a small distance. This condition may be called eu-

enarmosis. Supposing the same condition to exist, with this difference, that the space between the upper and lower teeth is much larger—projection of the upper jaw—then we have still an enarmosis, the upper teeth biting completely in front of the lower teeth, but no more a eu-enarmosis (normal bite). Here we place the prefix dia to enarmosis and call this condition a di-enarmosis. This projection of the upper jaw may amount to a few millimetres or more. Still another form of enarmosis may present itself, *i. e.*, the upper teeth may cover the labial surface of the lower ones entirely, and these again strike hard against the palate. This condition is said to be dysenarmotic—dys-enarmosis. Again, it is possible that a combination of the two last mentioned sub-forms of enarmosis may be met with; *e. g.*, strong projection of the upper teeth, with deep occlusion of the lower ones against the hard palate; such a case can be perfectly and at the same time clearly described as dys-dienarmotic. Everybody may at once understand what is meant.

In the next group (II. Epharmosis) we have just the reverse of the first group. Here the lower teeth come in front of the upper. Here, also, three possibilities may present themselves. We may have an eu-epharmosis, that is to say, (1) the lower teeth will touch the upper ones, leaving no space between them; (2) a di-epharmosis, the space is much greater, but the upper are not entirely covered over by the lower teeth, and (3) a dys-epharmosis, the lower ones cover the upper teeth entirely, leaving very little space between. A combination, dys-di-epharmosis, is possible.

The third group, Prosharmosis, comprises those cases in which the upper and lower teeth meet edge to edge.

The fourth group, Opharmosis, includes those cases in which, on closure of the teeth, the molars and bicuspids meet, but a greater or less open space is left between the front teeth.

We sometimes encounter instances in which the odontharmosis is such that the upper row of teeth meets the lower one crossways; for instance, on one side the teeth stand enarmotic, and on the other side pros—or epharmotic; or on the other hand, the lower jaw may be responsible for the deviation. This is called dicharmosis or cross-bite. Fifth group.

In the last group (VI.) are taken up those cases which cannot be classified under any of the preceding groups, the odontharmosis being so mixed up that almost every tooth has a different kind of

malposition. Under this head may be arranged certain cases of complicated irregularity.

It might be objected that in this classification no regard has been given to the etiology of the various forms of odontharmosis. This I believe to be no serious objection to the system. For instance, a di-enarmosis may be due to a contraction of the upper jaw or to an eversion of the teeth, and if the etiology is known it may be appended, *e. g.*, di-enarmosis ex contractione maxillæ superioris, and so on? Another objection may be raised against this system of classification, in that there is no room for certain "pictorial" expressions, as senile mouth, in which the teeth of the upper and lower jaw are inverted; but this does not detract from its value, and in these cases the odontharmosis may just as well be enarmotic or prosharmotic, if not epharmotic.—*Brit. Jour. Dent. Sc., Oct. 1897.*

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ORAL SURGERY. By Edmund W. Roughton, B. S., M. D. (Lond.), F.R.C.S. Eng. Diseases of the Glands. *Tumors of the parotid* are not uncommon, and several varieties are met with; but there is one tumor so much more common than the rest, that it is known as the "parotid tumor." It is composed partly of connective tissue and partly of epithelial elements. The connective tissue is partly fibrous, partly myxomatous, and partly sarcomatous. Nodules of hyaline cartilage are often interspersed throughout the tumor. The sarcomatous elements vary in amount and in kind; sometimes there are none, sometimes the cells are few and spindle shaped, sometimes they are more numerous and oval or round in shape. The epithelial elements bear a more or less close resemblance to the normal glandular structure. Cysts are not uncommon and result from liquefaction of the myxomatous tissue of the tumor.

The clinical characters of the tumor vary somewhat. When small they are firm and somewhat elastic to the touch, smooth or somewhat lobulated on the surface or rounded outline and freely movable. As they increase in size they project from the side of the face, forming a swelling as large as an orange or even larger. The deeper part of the growth often passes under the jaw and projects into the pharynx or fauces and comes into relation with the styloid process and its muscles, the carotid vessels and the large nerves in the neighborhood. The surface of the larger tumors is usually markedly lobulated and unequal in hardness; in places it is as hard as cartilage,

whilst in other parts it may be quite soft or fluctuating. The rapidity of growth varies greatly; as a rule they grow slowly and may take years to reach the size of a walnut, but at any time they may take on active growth and double their size in a few months.

In addition to the ordinary parotid tumor just described, *fibromata*, *myxomata*, and *enchondromata* are also met with in the parotid.

Spindle-celled and round-celled sarcomata are occasionally met with in this region, springing either from the gland itself or from the neighboring bones or fasciæ. They grow rapidly, soon implicating surrounding parts and often presenting in the pharynx.

Carcinomata of the parotid are fairly common. They are usually of the soft variety (encephaloid), but sometimes scirrhus cancer is met with. These tumors grow very rapidly, are deep-seated and fixed, and very soon involve the skin, which becomes brawny and of a reddish purple color.

Diagnosis. The most important point is to distinguish between an innocent and a malignant tumor of the parotid. The simple tumor is of slow growth, well-defined, movable, and does not involve the skin, whereas the malignant tumor is of rapid growth, ill-defined, fixed, and soon involves the skin. The only swelling likely to be confounded with a parotid tumor is a chronic enlargement of the lymphatic gland situated just in front of the neck of the lower jaw. Sometimes the diagnosis is very difficult, but the greater fixity of the gland, the presence of tenderness, and the enlargement of other lymphatic glands will usually suffice to discriminate the lymphatic gland from the parotid tumor.

Treatment. The treatment of tumors of the parotid consists in extirpation with the knife. As a rule no operation should be attempted for the removal of a malignant parotid growth, as nothing short of completely extirpating the whole gland (a difficult and dangerous operation) is of any avail, and recurrence within a very short time is almost certain. In removing innocent tumors great care should be taken that no lobule or outlying portion is allowed to remain. The skin incision should be made vertically over the tumor and of sufficient length to fairly expose the whole mass. The deeper dissection should be carried on from below upwards, or from behind forwards, so that one division of the blood-vessels may suffice. The facial nerve must be spared as much as possible by working parallel to its branches; a certain amount of

facial paralysis is very common after removal of deeply seated parotid tumors.

Diseases of the Submaxillary Glands. The commonest cause of enlargement of the submaxillary gland is obstruction of its duct by a calculus. Tumors of the submaxillary glands are very rare. I have on one occasion removed a small tumor from this situation which exactly resembled in microscopic character the ordinary "parotid" tumor.—*Brit. Jour. Dent. Sc., Oct. 1897.*

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UROTROPIN. The favorable reports that have come to my notice regarding urotropin lead me to think that some additional facts concerning it may not be amiss. Urotropin is a derivative of formic aldehyd, and not a coal-tar product. The well-known antiseptic and preservative power of formic aldehyd in solution led Nicolaier, of Gottingen, to use the solution of formic aldehyd, containing forty per cent of the gas, and known as formalin, as a means of preserving specimens of urine from decomposition pending examination. He noticed that neither uric acid nor the amorphous urates were deposited, though the same specimens not treated with formalin deposited either or both, as the case might be. Even when already precipitated these substances underwent solution when formic aldehyd was added to the specimen. Urines that readily deposited large amounts of uric acid when acidulated with a mineral acid did not do so when a sufficient amount of the preservative was added.

The results of these investigations prove very conclusively the great uric acid solvent power of formalin. The reputation of the lithium salts as uric acid solvents is caused by the common error of applying the results of laboratory experiments to practical therapeutics. The fact that lithium forms an insoluble phosphate, and that the blood and urine contain considerable amounts of soluble phosphates, show that lithium salts, given by the mouth, must form insoluble phosphates of lithium long before they can combine with the uric acid. In this respect it is no exception to the chemical law that when the ingredients for the formation of an insoluble body are present in a mixture this body will always be formed. Medical opinion has for a long time attributed the success attending the use of the lithiated waters to the water and not to the lithium that they contain. A similar error obtains in the case of some more recently introduced substances, lycetol, lysidin, etc. They do

not, in the urine, form the very soluble uric acid combinations that they do outside the body. Formic aldehyd being too irritating to be taken internally, Nicolaier then determined to try its amine combination as a substitute. This substance, hexamethylen-tetramin or urotropin is non-poisonous even in considerable quantities, is unirritating, very soluble in water, and is as good a uric acid solvent as formic aldehyd itself.

The name urotropin was given to it on account of the changes which its administration brought about in the urine. Alkalin and putrid urines, containing mucus in excess, pus and pus organisms, uric acid or amorphous urates, were rapidly restored to a normal appearance and an acid reaction. The urine was sterilized and increased in quantity, and calculi and deposits were dissolved. Hence urotropin is a most valuable resource in all suppurations of the urinary tract, and in all gouty and rheumatic conditions where an active eliminant of uric acid and its salts is indicated. A further valuable property of urotropin is its faculty of combining readily with salicylic acid and forming a soluble combination. A solution containing from ten to fifteen grains each of urotropin and salicylic acid to the fluid ounce of water, or other suitable vehicle, has the further advantage over the salicylates alone in that its taste is not disagreeable. It appears to be far less irritant to the gastric mucous membrane than solutions of salicylic acid usually are, and the combination promises to have a wide range of therapeutic usefulness.—J. A. FLEXNER, M.D., *American Practitioner and News.*

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PROMINENT CAUSES OF FAILURE IN THE USE OF ELECTRICITY IN DENTISTRY. By C. S. Neiswanger, M.D., Chicago. Read before Southern Dental Association, Old Point Comfort, August, 1897. Electricity is a natural phenomenon, and the only way to accomplish results, either physical or therapeutical, is to observe closely and try to interpret the language in which nature speaks to us. Electricity is closely related with some other forces with which we think we are familiar. It is but a mode of motion or other manifestation of a form of matter called the ether, which permeates all bodies and pervades all known space.

Light is only a transverse vibration of this same ether, with infinitessimally short wave lengths. Heat and sound are made apparent to us by the aid of longer waves of the same medium. Electricity

is governed by laws which are as well known as those which regulate light, heat, sound and gravitation, all elucidated by mathematical process. All animal and vegetable life being due to and dependent upon the electrical conditions surrounding it, is it not reasonable to suppose we should be able to restore the equilibrium (health) of the body by supplying electricity from an outside source?

To comprehend the subject of electricity there are three fundamental principles which must be observed: First. *Voltage.* This is not electricity itself but the force which impels it—push-power—produced by a difference of electric level. Second. This voltage or difference of electric level is caused (if we are doing cataphoric work with a battery of cells) by the difference of potential between the two elements within the cells. If two pieces of metal are immersed in an acid or other existing fluid, one of which is acted upon by the acid much more readily than the other, the voltage will be in proportion to the difference with which the two metals are acted upon by the fluid. Two metals having a great difference of potential will give a high voltage or push-power. Third. Amperage is electricity or current; it must not be confounded with voltage. We may represent this by a rain; the water represents the amperage, the swiftness with which it flows the voltage; hence as we may have a broad river flowing slowly, or a narrow stream running swiftly, so we may have high amperage and low voltage, or vice versa.

There are three factors in the causes of failure in this class of work: (1) The battery. (2) The controlling device. (3) The manipulation of the electrodes.

(1) The galvanic current—the direct or continuous current generally utilized in dentistry—is produced by chemical decomposition; the conversion of chemical energy into electric energy. If we would generate electric energy sufficient for our purpose, we must have a corresponding consumption of the fuel that keeps up the chemical decomposition, and this fuel must be renewed as required. Hence the failures of those who are seduced by the attractive advertisements of those who furnish a battery of a few cells as large as a man's finger guaranteed to do heavy work for years. In dentistry we have a heavy resistance to the passage of the current to overcome, and as it is the current or amperage that does the work, we must have sufficient voltage or push-power in our battery to overcome this resistance.

Dr. Marshall said that Dr. S. B. Palmer had established the fact years ago, that there is a current between the two metals in a tooth until the surface is oxidized, as seen in the blackened surface of an amalgam filling.

Prof. Neiswanger spoke of the importance of knowing which pole to use in applying medicaments. If potassium iodid is used at the negative pole the iodin would act as an acid and seek the positive pole, the potassium remaining at the negative. On the other hand, if the potassium iodid was applied on the positive pole, the iodid would remain at the positive, and potassium, the metallic base, be carried to the negative and left in the tissues. If a copper needle is used for the positive pole the copper would be decomposed by the action of oxygen, the copper going to the other pole; and in this way it would almost equal bichlorid of mercury, besides being non-toxic. Solutions or compounds are always decomposed, the base remaining at the negative, provided there is sufficient current to effect the decomposition. With cotton and the alternating current you can produce a local anesthesia of the tooth, tetanizing the nerve through fatigue of the muscle.

Dr. John Marshall said that he had valuable results in that line, in relieving pain and reducing inflammations and congestions. No medicament is required, the current itself contracting the muscles of the blood-vessels and producing anemia of the parts.

Dr. Price spoke of the various theories as to the action in cataphoresis, and said: When all the various theories have been analyzed, we are forced to the conclusion that it is electrolysis, pure and simple, with perhaps some osmosis.—*Ohio Dental Journal, Oct. 1897.*

A DIFFERENTIATION.—A medical writer makes the following distinctions in defining illusion, hallucination and delusion:

1. An *illusion* is a false perception of a real sensorial impression.
2. An *hallucination* is a false perception without any material basis.
3. A *delusion* is a false belief; the patient accepts his false perceptions as facts.

FOLLICULAR TONSILITIS.—This is an acute infectious disease and should be treated as such. Whilst systemic treatment is of paramount importance, local treatment should not be neglected. Each crypt should be carefully cleansed with a strong solution of hydrogen dioxid, then applications made to each with solution of silver nitrate, forty or sixty grains to the ounce. Involvement of the pharyngeal or the lingual tonsil should receive similar treatment.—*Philadelphia Polyclinic.*

(2) The controlling device should be capable of controlling the current in absolutely gradual gradations, and not by steps, or cell by cell, as this would cause very great pain in a hypersensitive cavity. An instrument in which the resistance is composed of german silver will, for instance, be objectionable, because the passage of electricity generates heat, and when the wire is heated resistance is increased and the current drops back and has to be reestablished by a forward movement of the instrument. This is a very prominent cause of failure not heretofore recognized. With the wire rheostat there is a constant fluctuation of the current backwards and forwards.

The term "volt selecter" means nothing. A volt selecter is a current controller, and the more voltage or pressure you have the more current is pushed through the resistance we encounter. It is the amount of current that does the work, and a milliamperemeter is the proper thing to have in the circuit that we may know how much current is passing through. Although the amount of current necessary in any certain case has never been definitely determined, it is a satisfaction to see the indicator upon the meter move and to know that the patient gets just what is indicated upon its face.

Let the battery have at least a pressure of forty or sixty volts. Less may do some of the work, but you have a reserve force for other cases. Your current controller should increase and decrease the resistance gradually and not by steps. It should be of graphite or carbon, with the patient in shunt. The electrode should be supported and controlled by the hand. A good meter with range of scale to five or more milliamperes, graduated in one-tenth milliampere divisions, should be in the circuit. With such apparatus, and by paying due regard to polarity and the electro-sensibility of your patient, you will have no reason to regret the use of this valuable agent. If you have not the time to devote to it do not attempt its use. If you are not overburdened with practice there is no better way to increase it than by its judicious use.

Discussion. Dr. J. Rollo Knapp asked Prof. Neiswanger to explain why, in view of the decomposition and waste of the two metals used in the battery cells, there was not a corresponding waste in the two metals used as fillings in a tooth. Is the loss so very gradual that it is imperceptible? Dr. Neiswanger replied that it was probably because the two metals were not kept submerged.

(to continue the statistics) that the expenses of a course for the degree in dentistry are about equally divided among the instruments and books, the board and lodging, and the college fees; that is, for each about $350 or $1,000 in all; and further it is found that in Cincinnati, which has each October an influx of several thousand students to its schools, professional and non-professional, no student expends and leaves in the city so great a sum of money as does the dental student.

But to return to the yellow-fever question. Our local health officer remarks that the sum of money lost to the country this year as a result of the yellow fever would have been more than enough to have established and maintained for several years a department of public health at Washington with its proper cabinet officer, which department could probably have averted the epidemic. And such a department would have, of course, its officer of dental surgery, or would it?

An open letter from Dr. Arrington, in the November *International Journal*, intimates that the usefulness of state dental examining boards has about ceased or may cease in the future. Would that be the heaven of dentistry or dental perdition? The letter contains many good points well put from the standpoint of a man in sympathy with the efforts which colleges conscientiously make to educate students to practice dentistry.

We notice the death of Dr. Evans, of Paris, just reported. Certainly the name of no dentist has been so heralded before the public as that of Dr. Evans. Perhaps, though, no other dentist has ever accumulated thirty million dollars. Is this fame?

Very truly yours, CINCINNATI.

CLEVELAND LETTER.

To the Editor of the Digest, CLEVELAND, NOV. 13, 1897.

DEAR DOCTOR:—I am perfectly willing to comply with your request for a little gossip, but our Cleveland men attend so closely to their professional duties that they find little time to exchange ideas. However, I will try and give you the news.

Just at present the local profession are preparing for the state meeting at Columbus next month, one of the features of which will be an all-day clinic, and we expect a good attendance from this city.

Letters.

CINCINNATI LETTER.

CINCINNATI, Nov. 16, 1897.

To the Editor of the Dental Digest,

MY DEAR MR. EDITOR:—At this writing it looks as though the Tri-State meeting (Ohio, Indiana and Michigan), which occurs in June, would be held at Put-in-Bay. This is what is called neutral ground and though it is Ohio's turn to entertain, the selection of Put-in-Bay will no doubt please everybody. The place is central as regards the three states and has not the distractions which are a necessary accompaniment of a large city. In this respect it is not unlike Niagara Falls, which has always been a good place for the American Association meetings, and if the dentists did not fill all the teeth of the Put-in-Bay natives at the last Northern Ohio meeting, there may also be a chance for a clinic. At any rate there is considerable interest manifested in the coming tri-state meeting and it is of the substantial, appropriation kind, which we regret to say is in marked contrast with the preparation for the former American association meetings. The committee say that all will be welcome, even if they come from Chicago.

The entire country is to be congratulated that the yellow-fever epidemic has been aborted by the cold weather and that the gates of the various southern cities are once more open for intercommunication. This epidemic has been more serious than northern people realize, and in other ways than as a thrombus in the arteries of commerce. For instance, at the outbreak of the fever a medical college of Memphis fled from its city, faculty, students, books and baggage, and took refuge in the quarters of a sister institution at Nashville.

We must realize that to thus transfer a body of students is an unusual and formidable undertaking. But the thought arises, how much more formidable would be the impromptu moving of a dental college. Imagine an army of two hundred dental engines, a hundred dental chairs, vulcanizers, furnaces and a car-load of text books. We are reminded that the equipment of a dental student is considerable and valuable. To illustrate: It is found that the dental depots of a college city receive from the students for their instruments a sum about equal to that received by the dental college in fees, and

Our local society is flourishing and, contrary to the history of most local societies, is gaining in membership and attendance. Just here it seems pertinent to remark that most of the trouble in dental, as in other societies, arises from personal jealousy, all of which can be eliminated if the viper be knocked on the head so soon as he shows himself.

Our young men are taking an interest in society work. Business with them must be good, for they are getting married; no less than three have become benedicts within the past month, Drs. Spargur, Price and Parsons being the happy trio.

We were greatly shocked to learn of the death of Dr. D. R. Jennings, which occurred last month. He had not been in the best of health for some years past. His operative work will long stand as a monument of his skill and fidelity to his patients. Appropriate resolutions and floral decorations were furnished, and the members attended the funeral.

Perhaps before closing it might be well to explain the plans adopted by our local society. The dues are $10 per year, whether a member is present or absent. This entitles him to nine banquets. We meet at the Hollenden Hotel at 5:30 p. m., the first Monday in each month, and finish whatever business may be on hand. The paper of the evening is then read and the discussion opened by two who have been appointed at the previous meeting, after which a general discussion is joined in between the courses.

Fraternally yours, CLEVELAND.

PHILADELPHIA LETTER.

Dear Digest: PHILADELPHIA, Nov. 17, 1897.

As the months roll around we renew the pleasure of reading your breezy yet dignified journal. In the editorial department there is always something solid to digest, while the letters usually give us something light and tasty in the way of a dessert, or, as we used to say when boys, "to top off on." Some of your recent correspondence though has been so highly flavored that many of us are falling back into our boyhood ways and are looking for the dessert first. "New York" always gives us something good, while "Quaker" sends in a newsy, personal, pointed communication. He writes at such a gait that the point is growing a little sharp. However, when a boil is to be cut we need something sharp.

Well, the last month has found us all in our places, down at hard work. The colleges are in full blast, larger classes than ever, and the faculties (some of them) seem even more zealous than of yore. Higher standards seem to bring higher numbers. Now the Association of College Faculties should formulate, and enforce, a rule that would shut out the men of a low moral fiber. It is too visible that one of the weakest points in our profession to-day is its moral and social standing; and the latter depends largely upon the former. Not all of us, of course, are lacking in moral sense; we can look around and see many who are leading upright, manly lives. But there are many, a great many, who care nothing for the moral side of life, who have no conception of a clean heart and a clear brain. To be a man in the fullest sense of the word is one of the greatest privileges our creator has given us. Pardon me for digressing; you asked for news.

The local societies, too, are down to business again, and it looks as though we were to have a season of renewed interest. The Academy of Stomatology had an interesting contribution from Dr. Broomell three weeks ago. It embraced the development of the teeth, which he presented before the meeting at Old Point Comfort. The Doctor deserves much credit for his painstaking work along these lines.

The Odontological Society seems to have renewed its youth. A medical man in the chair is a novelty, but Professor Brubaker has been a teacher at the old Pennsylvania College for many years, as well as at the Jefferson Medical, and is quite as popular among the dental boys as in the medical fraternity. Dr. Brubaker has shown much interest in purely dental subjects and there was a nice courtesy shown in electing him to the presidency of this society.

Last month we listened to a paper from Dr. George W. Warren on the "Therapeutic Treatment of Infected Tooth-Root Canals." While this is an old subject it seems to revive considerable interest, and was discussed by Professors Peirce, Truman, Litch and others. This month "Cataphoresis" was presented by Mr. Werner, a practical electrician, and Dr. Howard Roberts and S. E. Gilbert. The meeting was a protracted one, yet there seemed to be much more to say upon the subject.

Dr. Bonwill is back with us again after his four months' trip abroad. He says he has talked almost incessantly ever since he

members. This election is by ballot, the members elected serving for three years, and they are charged with the management of the business of the association.

This is a most excellent method of choosing a board, and far superior to the manner in which a great many of the state boards in your country are formed—by the governor, for no one can possibly believe that he is so well qualified to select the members as those with whom the candidates are coming in contact every day.

Should the board elected prove a poor one, the members have no one but themselves to blame, and the stay-away members—those who do not attend the meetings but criticize the work of the others—make a solemn vow that they will attend the next meeting and do wondrous things. When the next meeting occurs, however, they have forgotten their obligation.

In one particular our dental board is behind the times, and that is, in the way they present their report, namely, by reading it at the regular meeting. This is a waste of time, as one cannot digest what is read to him, especially as the reading embraces the work done during three years. We think it would be more up-to-date to hold the meeting each year and let every member have a printed report in his hands at least a week before the meeting, so that he could read, inwardly digest and be able to criticize the contents when the meeting took place.

The board does not recognize the diploma of any college, excepting that of the university with which the dental college is affiliated, nor does it accept the license of any state or neighboring province. In our next letter we shall speak of the necessary course preliminary to practice in this province.

We have something which we think is entirely new to the profession, namely, a consulting dentist. Dr. W. George Beers, of considerable literary as well as dental ability, has given up his regular practice and entered on this new venture. Will he succeed? We hope so, but are doubtful.

Dr. Peter Brown, well known as a skilled operator and an expert in electrical affairs, has been very ill for the last few months, which necessitated his taking a partner, Dr. A. Scott Ives, of Quebec. Dr. Brown has been rusticating at Richmond, Va., and we hope for his speedy recovery.

Dr. R. W. Watson, Treasurer and Professor of Mechanical Den-

left America, and we don't doubt it. Some of us do not agree with the Doctor in all that he talks about, but he has done much to bring dentistry to the high place it now occupies, both mechanically and artistically, and should have the full credit of it. Who of us is not enjoying something to-day which was evolved from Dr. Bonwill's fertile brain.

We regret to record the death of Dr. Thomas Evans, of Paris. He was a Philadelphia boy, and recently visited this city on a sad mission, the burial of his wife's remains. He was borne down by his sorrow and did not long survive her. We may say more of him again. Fraternally, QUAKER, JR.

LETTER FROM CANADA.

To the Editor of the Digest, MONTREAL, Nov. 15, 1897.

DEAR MR. EDITOR:—We in this far off province of Quebec are not much heard of, either through your American journals or at your society meetings, therefore we will endeavor by a series of letters to inform our cousins over the border what we have done, what we are doing and what we expect to do.

In 1869 a few of our older dentists secured from the Provincial Government incorporation under the appellation of the "Dental Association of the Province of Quebec." They secured for us exemption from jury duty, thereby putting us on a par with the members of the medical profession; they have power to enact rules and regulations respecting the honor, dignity and discipline of the members of the association; the examinations for admission to the practice of dentistry, and generally for all manner of things in connection with the profession. They also received power in 1892 to make arrangements for the establishment of the "Dental College of the Province of Quebec," in affiliation with the English and French universities of the province. We will speak of the college later. The Dental Association is composed of all the licentiates of the province. They pay an annual fee of $2, which, with the license fee of $60 on graduating, forms a fund for the payment of the examiners and for the protection of the members, as the board is thereby enabled to engage a detective to ferret out those practicing illegally and to punish them in the courts.

The members of the association meet every three years in September to elect a board of examiners, which consists of seven of the

then and have since been so convincing that we unhesitatingly pronounce chloroform a blessing, and not necessarily dangerous. We shall not hold ourselves responsible for "ignorant persons" who may misuse a good thing, however.

All journals have a habit of saying that they are not responsible for the views of writers, etc.; but we are disposed to hold the editors responsible for what they say, as they are supposed to have a breadth of view and a knowledge of conclusions that cannot generally be accorded to lesser beings. It may be argued that only complete anesthesia was dealt with, but the inference is that chloroform is an article to be let alone by dentists. Many older practitioners are too firmly grounded in their views to be misled, but the young men are not so safe, for they are listening to those who are supposed to know what they affirm. But it occurs to us that the editor in question is also young. We suggest that he study and give the proper range in his editorials.

Artistic dentistry pays in New York. We have seen a case, the results of which were so satisfactory to the patient that a check for $750 was very cheerfully given in payment. By artistic dentistry we mean regulating the anterior teeth by torsion, by the use of silk, etc. We are always glad to see a generous fee given for valuable service, but such a spirit has not been very freely manifested, particularly in New York and Brooklyn. A prominent dentist said to us recently, "It is a strange thing that while more legislating has been done in New York state than in any other to keep down quackerish practice in dentistry, yet there is no other place where it prevails so largely." A leak somewhere.

The first district society has appropriated $250 to the Academy of Medicine for the support of the A. L. Northrup Dental Library, given to the academy some three years ago. We do not know whether or not the dentists have free access to this library unless they have a membership in the academy. We hardly see how they can.

Dr. Corydon Palmer, of Warren, O., has been on a visit to his sons, Delos and Eugene, and we have met him. He is 77 years old, yet fully alive in good inventions for dental practice, some of which we saw, and they seem perfect in every particular.

The sad news of the death of Mrs. McQuillen, Dr. Dan's mother, greatly grieves us. She was a noble woman, and our acquaintance

istry at the college, was married on the 15th inst. to a young lady from Detroit. He was banqueted on the 8th by his fellow members of the faculty. We wish "Bob" every happiness in his future life.

Owing to the death of Dr. John Gentles, vice-president of the Montreal Dental Club, and the illness of some of the officers, there has been no meeting for some time, but we understand there will be one next month, when Dr. J. H. Springle will read a paper on "Hypnotism."

Fraternally, MONTREAL.

NEW YORK LETTER.

NEW YORK, Nov. 20, 1897.

To the Editor of the Digest,

MR. EDITOR:—"The knowledge that will hold good in working, cleave then to that"—back cover of the October *Cosmos*. We wish to apply this to the editorial of the *Cosmos* on "More Chloroform Fatalities," which affirms that the use of chloroform in dental surgery should be discontinued. We regard the editorial as lacking breadth or liberality, for while we admit on general principles that the use of chloroform to produce unconsciousness in minor operations should be discontinued, for producing loss of sensation in certain cases it is of far too great a value to admit of its being abandoned. To write such an editorial, and overlook the well known facts concerning the value of chloroform for anesthesia in minor operations, shows, we think, a misguided zeal. We do not deny that fatalities are very commonly associated with loss of consciousness, yet there is a great variance of opinion among competent men as to the cause. The records of the Scottish hospitals show that the percentage of fatalities in the use of chloroform is lower than in that of ether, and this is not the only testimony. We do not aim to reconcile these differences, our only object in referring to the editorial in question being to show the weakness of it, and to emphasize the value of chloroform in minor operations of dental surgery.

"The knowledge that we have found to hold good in working" we purpose to cleave to, and give it out to offset the lack of knowledge on the part of the editor. He cannot plead that he does not know these facts to be true. From a practical knowledge since 1874 we feel justified in our position. Our first experience with it was when it was used upon our own person by the late Dr. Riggs, while demonstrating his treatment of "Riggs' disease." The results were

have personally known him for 35 years, and remember that he was present at the first operation when a mallet was used by Dr. Atkinson. At that same meeting Dr. S. P. Miller suggested the use of sandpaper strips as a "flexible file" for finishing approximal fillings, and said he had used them for several years. Dr. Sheffield has had for 30 years one of the best practices in New England, and his work bore the stamp of ability. In his later years he was identified as president of the International Tooth Crown Co. We are glad to say a kindly word in his memory, for he had many good qualities.

We take the following from one of the daily papers: "A Russian dentist has at last solved the problem of supplying us with false teeth which will grow firmly into the gums. They are made of gutta-percha, porcelain or metal. At the root of the tooth holes are made, and also in the cavity, and in a short time a soft granulated growth finds its way from the jaw into the holes of the tooth and gradually hardens, thus holding the tooth in position. It does not matter in the least whether the cavity in which the tooth is placed be one from which the natural tooth has recently been drawn or whether it has been healed for months or even years." We wonder if Dr. Younger met this dentist while in Moscow.

A man drank two ounces of carbolic acid a few days ago, because of unendurable pain from a toothache, and died an hour later. He had been advised to have the tooth pulled, but had refused, saying that it would do no good, as the pain was in the gum. He was not altogether wrong, as pain in the gum is more of a factor in connection with toothache than was once thought. Abscesses without loss of pulp are a very misleading phase of dental practice. A case recently came to us which had been diagnosed by the former dentist as "Riggs' disease." Something had caused an abscess on the buccal surface of the first superior bicuspid, which caused the tooth to loosen, but the pulp was still alive. We merely devitalized the pulp and healed the abscess. These cases are often accompanied by excruciating pain. On further thought, we will emphasize the above case, feeling that it can be instructive to many. The patient has since returned to us, and we found that the prognosis was correct, and the tooth is tightening up.

At last the public are to be educated, for we see that the Central Dental Association, New Jersey, had a paper entitled, "Some Studies of Dental Education in the United States," illustrated by

led us to esteem her highly. We last saw her when Dr. Atkinson was alive. To lose such a mother is a great misfortune, and we tender our warmest sympathies to both Dr. Dan and his brother.

The printer has twice led us astray in our last letter. First, we said we endorsed the term of "chronic alveolitis" as possibly the best one; it may so prove. We further said of the paper on "Pyorrhea" that we thought it the best one we had yet heard. Second, the correction in regard to the death of Dr. Tenison, so printed, was that it was wrongly spelled. It should have been Tunison. A New York dentist spent a two-cent stamp to rectify the error, for which we thank him.

As regards the recent election in New York, you cannot level human nature down to right courses by politics. "Quaker" sees that in editorial weakness. If one charges another with big-head, he will probably be accused of the same failing. Young men are not safe in the editorial chair of a journal; they do not fill it gracefully.

Dr. Winkler's article in the October DIGEST is worthy of a careful perusal, and will convince readers that they do not know it all yet.

The question of dealing with dentists already in practice, as started by "Oriole" in the October DIGEST, should be taken up. We wished not long ago to be of assistance to a practitioner in Massachusetts in the same plight as the one in Virginia, so we addressed a letter to the "authorities" and enclosed a stamp for reply. We lost the stamp. While asking and answering questions, let us propound another: Is it progress in dentistry to put a medical man in as dean of a dental school?

We have many deaths to record this month. Dr. Edward Newberry, practically the founder of Brentwood, L. I., a dentist of considerable reputation, a well known single-tax advocate, and a spiritualist of some local renown, died Nov. 13. He was in many ways a remarkable man. We have seen some of his paintings, and for harmony of color they were striking.

Dr. Cyrus Ferris Rich, age 71, former president of the New York State Fourth District Society, died in Saratoga this month. Dr. Rich has long been well known and much respected. He bore a remarkable resemblance in feature to Prof. James Truman. He leaves a son as successor in his practice.

Dr. W. W. Sheffield, a prominent dentist of New London, Conn. has also passed away. He was 70 years old when he died. We

charts and object lessons. The program read, "Do not miss hearing the reading of these papers, as they can be assimilated by the laity as well as the professional man." This is not a bad idea, for the public need to know how dentists are being educated by legislation.

The First District Society has had the subject of sterilization before it. We think, to make things sure, the patient, office and dentist should be frequently sterilized. That is, of course, in some rare cases, for as a whole the dental profession is becoming much more neat and tidy. Cordially, NEW YORK.

BALTIMORE LETTER.

Dear Digest: BALTIMORE, Nov. 13, 1897.

Do my tail feathers seem to be on straight? and am I such an ugly, disagreeable bird? I had a very rough experience recently and all because I have been so indiscreet as to warble discordantly about things which others know so much more of than I. What a foolish bird I am to be sure, to try notes that don't belong to my family; but alas, having once tried the strange new way I must keep it up, and who can say that in the dim and distant future orioles may not grumble and complain like the veritable "Sandy Mocker."

Well, the Maryland State Society was called together last week to hear a report of progress from the committee appointed to amend the dental law, and incidentaly to vote the committee some money to pay a lawyer to draw up the document. The committee, it seems, don't intend to have any halfway law this time. Their counsel has informed them that the text of the old law is wofully barren of "lawyer-like phrases." I suppose he must mean such expressions as "whereas the party of the first part, etc., etc." I have an object in repeating this, for I know the old law to be a compilation of sections and clauses in other state laws, and I think these other states ought to know what an impotent and helpless thing a law is which is not made body and soul by a lawyer.

To continue, the committee got the promise of the money, and Oriole got an awful drubbing and had some ugly things said about him. I feel awfully ashamed that my professional brethren should be so poorly versed in ornithology as not to know an oriole when they see one, and yet some of our best men got up in the meeting and said they did not know who Oriole was, did not know that he

was present, didn't care to know him, but if Oriole said thus and so he was a blankety blank. Now Oriole protests, first, that he was not correctly quoted, and second, that he is no blankety blank. He is just a plain little orange and black bird, whose feathers are often too gay for his meek and law-abiding spirit, but the things Oriole has said in his letters can be proven and those who so recklessly criticised him are invited to be patient.

The young graduate of Ohio, referred to in my last letter, secured his temporary permit to practice dentistry in Maryland after my letter was written. He described to Oriole his stormy interview with the president of the examining board, exhibited his certificates from other states, and complained bitterly of the law's delay and official contumely. After waiting nearly a week, with no certain assurance, the certificate which he sought was granted by the secretary.

I think it is apparent to every one that there is just cause for friendly criticism on account of this delay on the part of the board in granting a temporary license to one who came so well recommended; but it must be understood, at least from now on, that it was not my intention to complain of the board, but by this illustration to show the absurdities that creep into the execution of unlawyer-like laws by unlawyer-like men, all over the country.

The law is a machine with the directions for its operation, it provides that it is made only for the grinding out of certain products and that it will receive only certain materials. Given these materials, the product is invariable. As soon, however, as the operator begins to stiffen up the machine with a little personal arrogance and self-importance, the harmony of its action is destroyed and everybody, I think, will vote it a nuisance. Why will not men be broad enough to recognize the fact that men of all conditions have their rights, put away the feeling that because I can, I will, and play fair for the sake of the brotherhood of man and the fatherhood of God?

Let our new law be a model and then let it be humanely and politely enforced, not as was charged of the old law by one speaker at the recent meeting, that contrary to precedent and a positive understanding with its framers, it was construed to the whim and fancy of the board, simply because it had the authority, which authority had never been exercised before.

Everywhere we hear mutterings and discontent with dental laws and dental examining boards. Why? Few will be so bold as to say

The Dental Digest.

PUBLISHED THE
TWENTY-EIGHTH DAY OF EVERY MONTH.

Editorial.

COOPERATION.

We have been urging from time to time in the columns of the DIGEST, by circular and in other ways, the need of a closer bond of union in the dental profession. When the dentists realize what an advantage it will be to cooperate in every way possible, we shall then show a strength that will make us masters instead of slaves. We shall discuss this question very fully and in detail during the coming year in the DIGEST, and give a brief history of some organizations and the benefits arising from such concerted effort.

It has already been demonstrated during the last ten years in the Dental Protective Association what only partial organization can do. Suppose now that each reputable practitioner had united with us, and a membership of 15,000 had thus been created, what could we not have accomplished? There is still a chance, however, for each one not a member to atone for his neglect by sending in his membership fee of only $10. There is still a great deal for such an organization to do, and surely what it has already accomplished is sufficient proof that it is not an experiment. Are we not right?

AMALGAM DISCUSSION.

In this connection we call attention to a short article by Dr. Black in this issue, replying to a criticism upon his methods by Dr. Patterson. When any question is constantly under discussion it is a sure indication that there are elements in it which are not perfectly understood, and the disputes over amalgam have been constant for more than 30 years. An examination of the amalgam fillings of longer and shorter standing show such a variety of defects that it is not strange that most of the better class of practitioners use it only under protest, and some few have even refused to make any use of it in practice.

When the results of a long series of experiments made by Dr. Black were published, under the head of "The Physical Character-

with Dr. Arrington, that dental boards are superfluous and useless. But down at the root of this whole matter is the personal equation; the "little brief authority" has done the damage, and who can be patient when they see men they have known for years bloated with self-importance and looking out over the heads of their betters.

Dental boards must be more moderate or dental laws will undoubtedly be repealed. Unfortunately perhaps for the people, the state legislatures still meet, and they are elected by the people, and just so soon as outraged sentiment becomes crystallized, reaction is inevitable.

The Baltimore dental schools are plethoric with candidates for the profession of dentistry this year.

Dr. C. M. Carr, of California, has been in our town for the past week or so. We hope his stay has not been either pleasant or successful, for while we are not advertising inhospitality from Baltimore, when we see a brother engaged in a career so open to criticism, we hope his path will be as thorny and uninviting as possible, so that he may be tempted to quit and be good. This gentleman seems to be trading on the fact that Dr. W. J. Younger is wearing one of his removable bridges, supported upon implanted teeth. Will you kindly say to Dr. Younger that Oriole (Dr. Y. spent last summer in Maryland and is doubtless familiar with my family), says that it is partly by the generous courtesies of the dental profession that he is enabled to charge a thousand dollars a minute for his services, and that Oriole thinks it is a very poor return to the profession to allow a peddler of office rights through the country to trade upon his name and reputation. Oriole advises him to take the teeth out and replant them. Send for Sudduth and have him hypnotize Carr and put him away in a vault for a hundred years, as Edward Bellamy did Julian West. Maybe when he awakes he will be ashamed of his peddling propensities. Isn't it a pity that men will get on the wrong side of a question? Now if Dr. Carr has a really good thing he could settle anywhere and make money, and obtain the respect and admiration of a community, but here he goes through the country making others ashamed that he is a dentist. The Doctor says, by the way, that he got all the best men in Washington. We'll have to send for Moody and have a revival at Washington if this is so. Good-by. Yours, etc., ORIOLE.

mercury and much trituration to make it plastic. An amalgam with these last named characteristics will not give up its mercury nearly so readily nor flatten out under the same pressure as will a plastic and easily amalgamated alloy. The latter can readily be squeezed into a cavity, but a perfect filling cannot be made from it. We will discuss this quality more at length in a later issue.

The third characteristic to which Dr. Black has given prominence, "stress," means the amount of pressure necessary to crush one of these same blocks. We suppose what is commonly termed "edge strength" would be an important feature here. With the dynamometer absolutely correct tests of the amount of pressure a block made from an alloy will stand before breaking can be made.

Combining these three qualities—flow, stress, expansion and shrinkage—decides the character of an alloy. We have been able to verify Dr. Black's experiments, and shall discuss them from time to time as occasion permits.

WHO WILL CONTROL?

We write this editorial with special reference to those entering our profession each year. This is not a new problem, but it is an unsettled one in the three professions of law, medicine and dentistry. In each one of these the contention is about the same—a plea for better educated material and more thorough training. This demand comes from the better class of men in each calling, and in such a way as to leave no uncertainty concerning their meaning.

The question of what constitutes legalized authority is still in abeyance in our ranks, and a prominent feature of the controversy at this time is the legality of a controlling board. The question is, will the courts uphold or sustain a board of dental examiners? What has transpired in Illinois relative to law students and to those legally qualified before being admitted to the bar will be of interest to discuss at this time.

The contention has been waging in the law profession in Illinois quite as vigorously as in our own. The charge was made, and what has recently taken place would seem to corroborate it, that the law schools were run as money-making institutions, that the preliminary requirements were ignored, and the ease and rapidity with which lawyers were manufactured was a great inducement for young men to take up that profession. The same has been charged of

istics of Alloys," they did not attract attention from the profession to the extent that the merits of the work deserved. This might be expected when we remember that busy practitioners as a rule are not apt to follow so elaborate a presentation of a subject as this of necessity had to be. We therefore think it important to bring out from time to time some of the most important facts there demonstrated from a practical standpoint, before the average dentist will derive the benefit from Dr. Black's invaluable work. The first and perhaps most important feature of his investigations was to prove beyond a doubt what takes place when an alloy of certain proportions of metals is mixed with mercury and used for filling. There had been many attempts made to ascertain whether or not amalgam shrank while setting, but these were wholly unreliable; first, because the material in which the cavities were formed, usually bone, was subject to constant change from moisture, etc.; and second, no reliable methods were used to ascertain what the shrinkage or expansion was. Dr. Black used steel tubes in making his fillings, and constructed a micrometer by which the changes could be accurately measured. Shrinkage was the universal result with all the alloys in use, but this was only one defect.

What he calls "stress" and "flow" are two very important characteristics of amalgam, and accurate tests were made of them with the dynamometer. By making blocks 3-32 of an inch square in steel dies, and after they had hardened placing them under a pressure of 60 pounds, accurate measurements were obtained of how much this block changed its shape in a given time. It was found that quite a change occurred in an hour with many of the most popular alloys, and in three or four hours a block would flatten out into a disk-shaped mass. This is what Dr. Black calls "flow," and it accounts for the bulged appearance of many amalgam fillings which are subjected to intermittent pressure. It was formerly thought that this was explained by the theory of amalgam having a spheroidal tendency in the cavity, but any one who will make a block of amalgam and subject it to a steady pressure of 60 pounds for a few hours, will be convinced that the spheroidity of amalgam fillings from year to year is mostly moonshine. This can be demonstrated more clearly if the block be made from an alloy that is known as "plastic," for such blocks flatten out much more rapidly than when made from an alloy which is hard to amalgamate and takes much

dental schools, but we shall not discuss this phase of the question at present, but rather emphasize the legal aspect.

This recent action, which is hereafter to regulate the qualifications of law students and the means employed to fix the standard of legal practitioners in Illinois, is of special interest to us at this time.

Growing out of an act of the legislature, demanding certain requirements to enable an individual to practice law in Illinois, the supreme court of the state has appointed or created a board of examiners which shall prescribe the requirements to be insisted upon in the examinations, which include a good moral character, a preliminary education equal to a high-school course, and three years' study of law before being admitted to examination.

It is not our intention in this editorial to give the law or court rules which are to govern the qualifications of lawyers, but rather to call attention to this act of the Supreme Court of Illinois as additional proof of what we have always urged in discussing the education of our profession, namely, that the courts had sustained and would sustain the action of examining boards, if such boards acted within the law, when the facts were properly presented to the courts. We contend further that any number of state boards can form a national association and act in unison, and their actions will meet with the approval of the courts. It is probable, however, that regulations prescribed by such an organization would not be sustained in a given state if in opposition to the law of that particular state. Therefore, a very important step that should receive unanimous support is a uniform law in all the states. Then the examiners from the various states can constitute a national board which will be able to regulate the qualifications for admission to our ranks. Surely such an aid in enforcing the proper standard should be welcomed by every honest faculty in the land; in fact, it seems to us the remedy for an evil which now threatens the future welfare of our profession, for according to their own statement, the colleges in favor of a higher standard were in the minority, and consequently were outvoted at the last meeting of the National Association of Dental Faculties, and the desired requirements were rescinded by the colleges opposed to higher standards.

Now, suppose that all the states were represented by examining boards, and they looked carefully into the question, and from such information as they obtained decided what schools were reputable

and what would be required as the standard for such recognition, keeping within reason as to the requirements, does any one question the good that would come from such a method, or the authority to so organize? So far as we can see, the present national board does not fall very far short of an authorized body, except that all the states are not represented, and it would seem that this action is all that is necessary to obviate the difficulty.

Notices.

SOUTHERN KANSAS DENTAL ASSOCIATION.

The Southern Kansas Dental Association will meet at Wichita, Kan., Dec. 27-29, 1897. U. S. HOUGLAND, Sec'y.

OHIO STATE DENTAL SOCIETY.

The next annual meeting of the Ohio State Dental Society will be held at the Neil House, Columbus, Ohio, December 7–9. One day will be devoted to clinics. J. R. CALLAHAN, Chairman Executive Committee.

NORTHERN ILLINOIS DENTAL SOCIETY.

The following were elected at the meeting held October 20 and 21, 1897, at Rockford: President, C. B. Helm, Rockford; Vice-President, Louis Ottofy, Chicago; Secretary, J. W. Cormany, Mt. Carroll; Treasurer, M. R. Harned, Rockford. Member Executive Committee, E. J. Perry, Chicago. The next meeting will be held at Rockford on the third Tuesday in October, 1898.

ROCKFORD ODONTOLOGICAL SOCIETY.

An auxiliary society of the Chicago Dental Society was organized in Rockford on the evening of October 20, at the time of meeting of the Northern Illinois Dental Society, with the following charter members: M. L. Hanaford, M. R. Harned, J. E. Harned, G. A. Furman, Boyant Kerr, C. A. Kitchen, C. B. Helm, H. C. Gill, F. C. Gill, C. J. Sowle, A. M. Harrison, J. J. Reed, J. L. Palmer, B. F. Ells and E. S. Tebbetts. A temporary organization was effected by the election of Dr. M. L. Hanaford as chairman and C. B. Helm as secretary.

NATIONAL ASSOCIATION OF DENTAL TECHNICS.

The fifth annual meeting of the National School of Dental Technics will be held at the Palmer House, Chicago, December 29 and 30, of this year. Its program will entitle it to even greater success than experienced at any time during its previous years of existence. Its leading paper, from Dr. G. V. Black, on "Instrument Nomenclature, with Reference to Instrumentation," will mark a historical period in methods of teaching the manual of cavity preparation.

D. M. CATTELL, Secy-Treas.
HENRY W. MORGAN, Pres.

LATEST DENTAL PATENTS.

592,002. Head rest, Alexander M. Denham, Santiago, Chile, assignor to C. J. and W. H. Ash, London, England.

591,982. Brazing apparatus, Theodore G. Lewis and F. M. Bailey, assignors to Buffalo Dental Manufacturing Company, Buffalo, N. Y.

596,746. Disinfecting device, Samuel Schwarz, assignor to R. Schobel, New York, N. Y.

592,878. Dental electrode, Francis L. Morhard, New York, N. Y.

TRADE MARKS.

30,758. Dentifrice, F. A. Sarg's Sohn & Co., K. K. Landespriv, Milly, Kerzen, Siefen, und Glycerin Fabrik, Vienna and Liesing, Austria-Hungary.

27,747. Brazing stand, design, Theodore G. Lewis and F. M. Bailey, assignors to Buffalo Dental Manufacturing Company, Buffalo, N. Y.

(List furnished by John A. Saul, Patent Attorney, Washington, D. C.)

RESOLUTIONS ADOPTED BY MISSOURI STATE DENTAL ASS'N.

Whereas, in the providence of Almighty God, He has seen fit to remove from our midst two of our most valued members, Dr. Wm. N. Morrison of St. Louis, and Dr. W. T. Reed of Macon, and

Whereas, the fine personal character, the high professional standing and the general individuality of each of these men, who have held the highest office in this society, makes their loss a personal one to every one of us, as well as to the profession at large; therefore be it

Resolved, That in the death of Dr. Morrison and Dr. Reed this association has lost two valuable workers, each of us a friend, and the dental profession members whose high ideals and ability made them an honor to that profession.

Resolved, That the deepest and most heartfelt sympathy of this association is hereby extended to the bereaved families in their affliction, and

Resolved, That this expression of esteem and sympathy be placed in full upon the minutes of this society, and a copy be sent to their respective families, and to the journals for publication.

(Signed) JOHN G. HARPER.
EMMA EAMES CHASE.
G. E. TAINTER, JR.

RESOLUTIONS ADOPTED BY NORTHERN ILLINOIS DENTAL SOCIETY.

To the President and Members of the National Dental Association, and the President and Members of the National Association of Dental Examiners.

Gentlemen: At the tenth annual meeting of the Northern Illinois Dental Society held at Rockford, Ill., October 20 and 21, 1897, the undersigned were appointed a committee to draft and present to your associations suitable resolutions, with a view to remedy an existing evil regarding the interstate practice of dentistry, and we herewith submit the following for your consideration:

Whereas, a legal practitioner of any one of the United States, who desires to remove to another state, is, under the existing laws, compelled to comply with certain requirements of the dental law of that state, and

Whereas, in many instances such legal practitioner, sometimes of many years experience, is subjected to a more or less severe theoretical examination, which can not even be successfully passed by many who are fresh from the college halls; therefore, be it

Resolved, That the National Association of Dental Examiners and the National Dental Association be and are hereby requested to enact such rules, or to secure such modification of the dental laws of the various states, which, under reasonable restrictions, will enable competent practitioners to remove from one state to another without being compelled to submit to provisions which are eminently unfair to a large number of capable dentists.

LOUIS OTTOFY,
W. H. TAGGART,
M. L. HANAFORD,
} Committee.

Attest:

JAMES W. CORMANY, Secretary.

Dated November 10, 1897.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

(*Continued from page 683*)

MONDAY, AUGUST 2, 1897—MORNING SESSION.

The President called the meeting to order and the secretary called the roll of states.

Dr. Moore: As chairman of the committee on credentials I wish to report that the State of Missouri makes application through its representative, H. P. Lowry, for admission to the association, accompanied by the admission fee, and we recommend the election of that state. Also that we have the credentials of Dr. G. N. Rust, of the Virginia Board of Dental Examiners.

On motion the above report was adopted.

The President: Is the committee on conference ready to report?

Dr. Donnally: We have a very short report from the committee on conference, and while it was my understanding that the chairman of the committee of each organization was to sign both and commit the committees of both bodies to the changes, the papers have not been signed and I will read just what changes have been made.

Rule 1 remains exactly as it was.

Rule 2 is as follows. "The preliminary requirements prescribed by the National Association of Dental Faculties will be accepted by the National Association of Dental Examiners."

Rules 3 and 4 remain as they were.

Rule 5, in the second line, has the word "college" inserted between the words "separate" and "years"; there is omitted from lines two and three the following: "With three months' practical instructions intervening between the course," so that the rule reads as follows:

"Rule 5. Attendance of students upon three full courses of not less than six months' duration, each in separate college years, shall be required before final examination for graduation."

In rule 6, line 10, the word "to" is omitted, so that the last clause reads as follows.

"That such college must possess in addition suitable lecture rooms, a well-appointed dental infirmary and a general prosthetic laboratory, also must furnish in this way systematic instruction to its students."

There are no further changes recommended or agreed upon by the committee.

Dr McCurdy: Are those the rules that are now supposed to be adopted?

The President: Those are the rules that have been modified from the rules which you adopted here on Saturday; that is the modification of the rules as reported by Dr. Donnally.

Dr. McCurdy: Would it not be well to read those all over so that we may understand it? There are some here who perhaps misunderstand the rules.

The President: Would it not be well first to accept the report of the committee?

Dr. Donnally: And discharge the committee.

Dr. Meeker: I move the acceptance of the report and that the committee be discharged.

Dr. Moore: Is that a final report of the committee?

Dr. Donnally: The committee have no further meeting in contemplation. We have agreed and this is our report.

Dr. Moore: You will have no further conference with the Faculties?

Dr. Donnally: Not unless this body so directs us. If you accept the report and discharge the committee that ends the matter.

Dr. Moore: The reason I ask the question is because I think there will probably be some changes in the action of the Faculties as taken by them last Saturday and I did not know, if those changes were made, but it might make some difference in the report of the committee.

Dr. Meeker: In order that we may discuss the subject, I move that the report be accepted.

The above motion was accepted and carried.

Dr. Chappell: The association appointed the committee and we met and organized by the election of a chairman and a secretary and then took up each proposition and considered it. There was complete harmony on rule 1 As to rule 2, the college association could not see that it was advisable to require them to be bound by the full text of this section from the fact that during the afternoon they had completely wiped out their preliminary requirements as adopted at Saratoga. In formulating new ones it will take one year before they will be adopted, and it would not be a requirement for them until two years from now. Consequently after a thorough discussion of the matter we came to the conclusion that we would recommend to our body that the change be made. There was a little discussion in regard to the question whether we had the power to cross that out or not. Part of our committee considered our only duty was to report to you what the objectionable features were, and recommend that the corrections be made.

The President: Would it not be well, as Dr. McCurdy has suggested, to go through with each section and act upon it?

Dr. Chappell: As a finality?

The President: Yes, and then act upon the whole again.

Dr. Chappell: That has already been done and the amendments all adopted as a whole.

The President: Yes, but there is an alteration.

Dr. Donnally: It seems to me it would be sufficient for us to consider the changes that have been made and then consider it as a whole. I am sorry I did not make it complete and plain in my report so as to do away with the necessity of another explanation.

Dr. Chappell: After the changes in rule 2 are made it will read as follows: "The preliminary requirements prescribed by the National Association of Dental Faculties will be accepted by the National Association of Dental Examiners"

Dr. Brown: If that has not been adopted the committee on colleges would like to offer a substitute.

Dr. Faught: Since the adjournment on Saturday night and the action of the Faculties regarding the standard of 1884, your committee on colleges has

been most constantly and actively at work. We have had conferences with the various representatives of the boards of the different states; also with the representatives of the College Faculties, and we believe that the resolution which we now offer as a substitute is one which is acceptable to the various state representatives and to both the college and the examiners' boards. We believe, more than that, that it is the highest *possible* standard that can be adopted at this time; and we know more, that a resolution similar to this will be introduced this morning in the Faculties' Association and that the resolution will of course lie over as has been explained to you and cannot become a law for two years. In order that we may maintain our laws and go on with the work of this association we offer this resolution as a substitute for rule 2:

Resolved, That the preliminary requirements of colleges for recognition by the National Association of Dental Examiners for the session of 1897-8, and 1898 9, or until such time as a satisfactory preliminary standard is adopted by the National Association of Dental Faculties, shall be that a student applying for matriculation shall present a certificate which shall be the equivalent of attendance upon the first year of a high school of the state in which he resides, or where no such high school exists, the equivalent of a certificate of graduation from the grammar school of such state, or that he shall satisfactorily pass an examination which shall be an equivalent to these requirements as shall be indicated by his state superintendent of public instruction.

The above resolution was seconded.

Dr. Donnally: Did I understand Dr. Faught to say that a similar resolution to that would be presented in the Faculties' Association?

Dr. Faught: It will be presented this morning and will go a little further; it will tie the lines a little tighter; it will break up the commercial trading back and forth between the states. While we are aware of the very desirable features that will be contained in such a resolution, yet we do not feel that we have any right to embody it in our resolution, because we have no right to take what they intend to do and act upon it before they act This standard, while it is not just as close as theirs will be, will be acceptable for the two or three years which may intervene before the adoption of the one which will be presented this morning in that association. We believe there is not the slightest doubt that the resolution adopted there to-day will go on the calendar and in time will be adopted, but it will take the regular routine time of at least two years before becoming operative. This resolution was not taken from theirs; we formulated this ourselves, and they, knowing that we had this, invited us to a conference with them and they were surprised to find how very closely our resolution and theirs met. Then they raised theirs to the high school; they only had it at the grammar school grade, and we met them on the graduation from the grammar school to cover those states that have no high school. So that we are in perfect harmony as to these requirements of preliminary education.

Dr. Donnally: I want to ask, for the benefit of all, if this board passes the substitute that you offer, would it become operative by its adoption by the National Association of Faculties, for the two years before they can, by their laws, establish a preliminary requirement? That is to say, does this make the way open for them to accept this and for the next two years have a standard that is better than the standard of 1888?

Dr. Faught: That is practically what it does. It makes the way open for all of the colleges to accept this in the interval, and I believe there will be no difficulty about their doing so.

Dr. Barrett: It strikes me you had better hesitate a moment before you adopt this resolution. Your regularly appointed committee on conference comes in and says one thing as the result of its deliberation with a regularly appointed committee of conference from that organization; the chairman of the committee on colleges reports a substitute, and I have listened to quite

another resolution that is to be presented to the Association of Faculties today. I think before we act on this clause it would be well to find out just where they are at. What we do now we may be obliged to undo later, and why not leave this rule until we have something positive—until we know exactly what they are going to adopt, exactly what they mean; not to select one of three, or one of two even. They agreed on the report with Dr. Donnally, and Dr. Faught tells us they are practically agreed with him on the substitute. With whom do they agree and what are they going to do? I think we should postpone action on this rule until we find out what they do.

Dr. Donnally: I have no pet scheme. I have no particular disposition to urge the acceptance of this report from the committee simply because it is a report of the committee, but I want to explain that if we adopt this resolution we gain nothing—not a thing in the world. If the Faculties this morning, in their wisdom, see fit to accept (as Dr. Faught said they probably will) that report as an amendment to this, it will be just as binding.

Dr. Brown: I should like to correct Dr. Donnally there. Dr. Faught did not say that.

Dr. Donnally: Dr. Faught told me a moment ago he understood that would be offered as a substitute for this clause.

Dr. Faught: No; by a separate resolution. It is understood the resolution will not be discussed, but put upon the files to be regularly acted upon.

Dr. Donnally: If after they adopt this report of the conference committee this resolution is offered and adopted we are bound by it and agree that we will accept it. We cannot possibly fix the standard for colleges; we cannot enforce it if we do, and it is folly and foolishness for us to attempt to force them to something that they are not, by their own association rules, required to do. If we want to strike out the whole list of colleges or thirty-five or thirty-eight of them, we can do it; but what is the use of that? It is perfectly absurd. We know perfectly well that their rules will not permit them to prescribe preliminary requirements now or next year, or at any time, that will become operative before the session of 1899 or 1900. Drs. Pierce and Smith and Menzes all discussed this particular point. They would be very glad to have something of that kind. Dr. Adams had something of the kind which he suggested and which Dr. Morgan thought was impracticable in the form in which it was, but by some modification which has been made and which has been explained by Dr. Faught he thought it could possibly be enforced if it were adopted, when it becomes a rule of the Faculties' Association. They do not admit that we can make rules for preliminary requirements that are binding on them. There must be a voluntary acceptance not by the Association of Faculties, but by individual colleges. We have provided that if they accept it we will accept it, and we cannot do more than that; if we vote this committee's report down and put in a substitute we kill the whole thing. There is not a thing in it that is binding if we change one single word or make any alteration whatever, and we will lose the whole benefit of what we have gotten them to consent to.

Dr. Klump: The substitute is covered by the recommendation of the committee because the committee accepts what the National Association of Faculties accepts, and we don't know just what that is. It seems to me that we had better vote the substitute down and then we will have whatever they accept.

Dr. Brown: But that is two years off; do you want to let down the bars for two years?

Dr. Klump: How are you going to keep them up?

Dr. Brown: Put them up ourselves; we are not dependent upon their action.

Dr. Donnally: How would you enforce these rules?

Dr. Brown: Simply by sending this resolution to each one of the colleges on our list, asking them to subscribe to it and refusing to put any college on our list who will not subscribe to it.

Dr. Donnally: If the colleges who refuse to do so were in the large majority they would decline to recognize us at all and we would not be anywhere.

Dr. Brown: Why not? Where are we now, as far as that goes? Our list is simply a recommendation to the state boards for their guidance.

Dr. Donnally: I will tell you the difference, doctor, right here. If we accept the rules they make after they make them, then we can come in and enforce them, and report the colleges and do them some harm, provided they violate their own standard. If they fail to keep up to their own standard we can do something, but if they fail to keep up to our standard we gain nothing by it.

Dr. Brown: According to Dr. Donnally's idea then, because the Faculties' Association have taken down the bars and opened the gates, we are to follow their suit and do exactly the same thing! One of the deans of one of our prominent colleges, in conversation with me a few moments ago, said: "This action, if it is not changed at this meeting, simply means that a man in coming to one of our colleges has to pass an examination as laid down by the rules of 1884. We ask him to write his name; if he can write it he passes the examination, if he can't, why it is all right any how." There is the standard—are we willing to accept any such standard as that? There will be a resolution offered in the Faculties to-day that may cover this matter satisfactorily; it is claimed by some they can cover the two years by a resolution requiring a standard similar to this. It does seem to me, however, that after all the work this association has done to raise and maintain the standard of preliminary education we are now dropping the whole thing that we came here to work for, and that with the backing of a great many of the colleges; all the colleges that wish to come in and have made satisfactory application are willing and glad to subscribe to this very thing and have so expressed themselves this morning.

Dr. Barrett: I move that the matter be laid upon the table for the present until we have a report of just what they have done; it is a waste of time to talk this matter over; we cannot arrive at any intelligent conclusion. When we know what they have done we can act intelligently, but not until then.

The above motion was seconded and carried.

Dr. Chappell: As to rules 3 and 4 we are in perfect harmony. In rule 5 the word "college" was put between "separate" and "years." The clause requiring three months' practical instruction was stricken out. It seems that some states could not be governed by this rule as it would be a direct violation of their law.

It was moved and seconded that rule 5 as amended be adopted.

Dr. Lowry: I do not think we should make the first change referred to, for there is quite a difference between three college years and three "calendar" years. It is possible for a man to graduate in two calendar years and at the same time put in three college years. The object of making it three calendar years was to cover three full years of time and give the students that much time in the study of dentistry before they graduate, and not allow them to graduate in three college years which might be covered by two calendar years. That word "college" ought to be stricken out, and it should be made two calendar years instead of three college years.

Dr. Donnally: The gentleman has the right idea but the wrong way of getting at it. By making it calendar years a man may take three terms of six months each within two years, but by making it read "three separate college years" he cannot. It is necessary to make it college years in order that he may not take three college terms of six months each in two calendar years, and that is the very reason it is put in that way. The first term, commencing October, 1897, let us say, the second in October, 1898, and the third in October, 1899.

Dr. Chappell: We have one college in the United States, if not more, which begins its sessions on the first of January.

Dr. Donnally: But they still have six months before the college closes.

Dr. Keefe: Can I have that section read again?

Dr. Chappell (reading): "Attendance of students upon three full courses of not less than six months duration, each in separate college years, shall be required before final examination for graduation."

Dr. Lowry: I don't see how you are going to cram three calendar years into two college years, but I can see plainly where you can cram three college years into two calendar years. I think I have got that accurately—that you cannot put three calendar years into anything but three series of twelve months each; you can put three college years into less time than that, because a college year is only six months. It is very plain that you can put three years of six months each into three years of twelve months each, but how can you put three years of twelve months each into three years of six months each? That may seem a little vague. [Laughter.] I put it all right but it is a little difficult for a man to follow, that is all. It is possible for a man to begin the study of dentistry in a college on the first day of January when some of our colleges begin the college year; he can continue there for six months, which will go up to June; then he can begin in October and put in one year and a half. Now there is one year and a half of college work in one calendar year, is there not? He can do the same thing the next year.

Dr. Chappell: He could not enter a college on a half term, but only for a full term.

Dr. Lowry: I am only saying what he can do in one year. He cannot take a half term. He must continue on until March, but he gets in a year and a half in one calendar year. When one college began in January and the other in July, it would be possible to put two college years in one calendar year. I want to have his mind on the study of dentistry for three calendar years.

Dr. Donnally: Under this rule he begins in one calendar year, and ends in the fourth calendar year after that.

Dr Lowry: No, he can end in the second calendar year after that. I say it is possible for a man to graduate in twenty-four months' time under that rule.

Dr. Smyzer: I think that exception is well taken. A calendar year consists of twelve months and a college year does not.

Dr. Donnally: Excuse me for interrupting you, but it is a well-known fact that a college year begins in July and runs to the next thirtieth of June.

Dr Smyzer: Colleges do not all have the same time of opening. But a calendar year means twelve months, and a college year does not. It leaves open a way for colleges to get around the law if they wish to. If you made it a calendar year it would be impossible for them to do so.

Dr. Barrett: There seems to be some doubt about this, but I think a way could be hit upon to remove all doubt. I think this rule could be framed so that there would be no question of doubt. In order to do that you could specify that a college year should begin on the first day of August and end upon the last day of July, or upon the first day of October and end upon the last day of September.

Dr. Chappell: You cannot affect the charter of a college.

Dr. Barrett: But you will not change it, and you can make that as a suggestion and frame the rule so that there can be no question of doubt. I think in the Faculties' Association they stipulate just that thing, that the college year shall be from August 1st to July 31st.

Dr. Brown: It seems to me this will all be taken care of by the Faculties' Association; there is no danger of their allowing any falling back on the three terms. There is a moneyed interest there which will take care of that feature of it.

Dr. McCurdy: Was this suggested by the Faculties' Association?

The President: I cannot answer your question; you will have to call on the committee.

Dr. Chappell: I am unable to answer that question now, because we had so many suggestions.

Dr. McCurdy: Maybe it is for the purpose of dodging the question.

Dr. Donnally: No; I will answer that most positively—that it was put in that way, instead of the calendar year, so as to follow the fiscal year of the college. It was done in good faith, in order that it might cover three years. A man could go to one college, under the calendar year arrangement, and commence on the first of January and take six months there, and go back to another college in July and take six months there; that makes twelve months in that year. Then he could go back to the first college, take a term and graduate in eighteen months altogether, if you follow the calendar year arrangement. But under this rule it must be six months in separate college years, and a college year is just as full a twelve months as a calendar year. Under this arrangement a man studying dentistry must necessarily be in college for two years and eight or nine months, and the only part of the three years that is lost is that part between the close of the college session and his graduation and the beginning of the next session. That is the only time he loses out of three full years of twelve months each.

Dr. Edwards: I do not rise to discuss the matter as a member of the committee, but simply to afford information. It has been asked which side that proposition came from to make that amendment. I made the motion myself to strike out the intervening three months of practical work, and then I do not know who started it, but it started us on this other point and it was arranged as it is. The first motion to make any change at all came from myself.

Dr. Donnally: It was explained that the college year was twelve months.

Dr. Edwards: Yes, that was discussed.

Dr. Lowry: I would move an amendment to that rule so that we simply strike out the three months additional and do not change the other part of the rules. To make it plain I move that the recommendation of the committee that the word "college" be inserted, be not approved. That the word college before the word "years" be stricken out, leaving it so that it reads "separate years" instead of "separate college years."

Dr. Keefe: I second the motion.

Dr. Lowry: The motion is that it be in three separate calendar years instead of three separate college years.

Dr. Chappell: It has been asked who suggested that change. Dr. Morgan, I believe, made the suggestion, but taking the other side of the question entirely—that having it the way suggested by Dr. Lowry would complicate the matter and make the whole thing inoperative, and the committee all agreed with him. They have gone over the subject carefully and, I think, thoroughly, and I understand that it is all right.

A vote was then taken on Dr. Lowry's motion to amend the same and lost. Thereupon a vote was taken upon the motion to adopt rule 5 as reported by the conference committee and the motion was carried.

Dr. Chappell: There was complete harmony on the other sections, excepting a mere clerical change in line ten of rule 6, where the word "to" was stricken out and a comma inserted. Those of you who have had experience in the passage of laws by legislatures know very well that when no penalty is provided the law is inoperative. Now we have no penalty provided in our law whatever, and I would make this suggestion as a new rule.

Rule 9. To more clearly enforce these rules it is hereby directed that any college violating these rules shall be taken from the recognized list of colleges.

I move its adoption. (The motion was seconded.)

Dr. Donnally: That is provided for in the very first rule, which says that colleges desiring to be on the recognized list must do thus and so. I think

we ought to make these things just as oily and smooth and nice as possible. We can take these colleges off one at a time when action requires it and I certainly would be sorry to see an amendment which would make it necessary to go back to the Faculties' Association with these rules. We can provide another rule later on to cover cases that may come up. Dr. Chappell talked about a law; this is not a law that goes to the Supreme Court of the United States or of Indiana, or the Court of Appeals of Virginia.

Dr. Chappell: It might go to Congress though.

Dr. Donnally: It is for us to provide for these things as they arise.

Dr. Chappell: As there seems to be some discussion about that I will withdraw it for the present.

Dr. Moore: I think Dr. Chappell is right. Provision is made in the laws for putting the colleges on the recognized list, but there is no provision for taking them off, and when you come to a question of law about it you cannot take them off; you put them there, and that is all. Why, my dear sir, you go into the legislature and get a bill passed and if you want that bill to be operative you must have an enactment that all previous laws conflicting with that law are repealed. If you do not, then you are going to have trouble with your law and it is not a law at all. You can pass a law forbidding a thing to be done, but if it is done you must have a law permitting you to punish for doing it. You cannot strike these colleges off after they have been once put on unless that is provided for in the law. I have been before the legislature for fourteen years, nearly every session, and I have been obliged to study law. Here you have no penalty. The Virginia legislature can make a law saying that a man shall not do so and so, but if there is no penalty at all the law is not operative. You have no rule or law by which you can strike the colleges off and we never have had such a law.

Dr. Brown: I move that this new rule which has been offered by the secretary of the conference committee, be referred back to that committee.

The above motion was seconded and carried.

Dr. Dowsely: The committee appointed to tabulate the returns from the states desire to present their report as follows:

Nine states have returned reports of the number they have examined and rejected. The numbers are as follows: Examined, 367; rejected, 132.

REPORT OF EXAMINATIONS—1896.

STATE.	No Examined.	No. Passed.	No. Rej'ct'd.	No. Graduates.	No. Not Graduates.	No. Registered.
Connecticut	13	11	2	11	2	11
Indiana	.....	9	11	69	10	81
Kentucky	18	8	10	1	17	8
New Jersey	53	37	16	45	8	6
Pennsylvania	.....	.....	.....	.....	.....	282
Rhode Island	34	32	2	29	5	32
Vermont	4	3	1	2	2	.....
Massachusetts	214	136	78	.....	.....	.....
Washington State	13	13	.....	13	.....	13
Tennessee	18	6	12	.....	.....	6
Maine	12	11	1	3	9	11
South Carolina	11	9	2	10	1	11
California	12	9	3	.....	12	9
Mississippi	13	5	8	3	10	5
New Mexico	.....	7	.....	7	.....	7
Total	415	296	146	193	76	480

On motion the above report was accepted.

The President: We must elect our officers at some time and if you are ready, and there is no objection, we might as well do so now.

Dr. Fredericks: I move we go into the election of officers.

The above motion was seconded and carried.

Dr. Meeker: We have twenty-one states present as follows: Alabama, Connecticut, Delaware, District of Columbia, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maryland, Massachusetts, Mississippi, Missouri, New Jersey, Pennsylvania, Rhode Island, South Carolina, Tennessee, Virginia. Each state is eligible to vote ten votes.

The President: You probably understand, gentlemen, that when we vote for officers we vote by ballot and each state is entitled to ten votes. If there are two members and they desire to make a division they are entitled to five votes each; if there are more than two, each one is entitled to his share of the votes, if they desire to make a division.

The Chair appointed Drs. Clements and Fredericks as tellers, and the election was proceeded with, resulting as follows:

Officers for 1897-8—President, Dr. C. G. Edwards, Louisville, Ky.; Vice-President, Dr. Geo. L. Parmele; Secretary and Treasurer, Dr. Chas. E. Meeker, Newark, N. J., by acclamation.

On motion adjourned until three o'clock p. m.

(To be continued.)

News Summary.

VALUE OF MEAT EXTRACTS.—Professor Von Voit, of Munich, Germany, has investigated the extracts of meat and announces that such extracts have very little nutritive value, if any, and that their action is almost entirely a stimulating one, being due to their contents of alkaloids, such as creatin and creatinin.

BURNED BY ROENTGEN RAYS.—The daily papers report a case of extensive burning by X-rays in the person of a young woman who was skiagraphed in order to determine the nature of a supposed affection of the antrum of Highmore. It is stated that all the hair has fallen from one side of her head and that the skin of the face and neck was also blistered over a large surface.

IMITATION THE SINCEREST FLATTERY.—The DENTAL DIGEST was the first dental journal to systematically recognize European progress in dentistry, by reporting the best which the foreign journals contained, and the *Items of Interest* has recently added a department of "European Progress." The DIGEST was also the first to have a regular letter from different parts of the country each month, and the *Dental Review* is now following our lead. That is right, gentlemen, keep up with the procession.

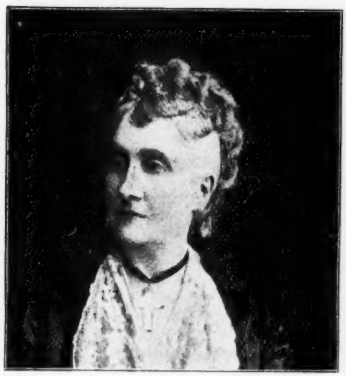
THE LEOPARD CANNOT CHANGE HIS SPOTS.—The custom of taking articles from other journals and giving no credit therefor, which prevailed so largely in the old *Items of Interest*, and to some extent in *Welch's Monthly*, is now being adopted by the editor of the *Dental Brief*, who, by the way, was the editor of the two other journals named. In the November issue of the *Dental Brief*, under the head of "*Original Communications*," is an article by Dr. H. W. Allwine, on "Trichloracetic Acid as a Solvent of Necrosis," which was published in the June, 1897, issue of the DENTAL DIGEST.

Obituary.

THOMAS W. EVANS, D.D.S.

Dr. Thomas W. Evans, the famous American dentist, whose picture with that of his wife is given at the head of this notice, died suddenly of angina pectoris, at Paris, November 14. He had never recovered from the shock of his wife's death.

Dr. Evans was born in Philadelphia about 75 years ago of humble parentage. He received a common school education, then entered the shop of a goldsmith, where his manual skill in making gold plates decided him to become a dentist, which at that time was a despised calling. He entered the Jefferson Medical College and graduated at 18 with honors. Later he won the gold medal of the Franklin Institute for proficiency in dental surgery.



He went to Paris in 1846, where he remained the friend of the United States during the Civil War, buying American securities when they dropped to very low points, thus backing up his statement that the Confederacy could not win. Dr. Evans was practically the first person to introduce gold filling for teeth into Europe. Since his advent in the French capital, Dr. Evans had attended to the teeth of most of the crowned heads of Europe, to say nothing of almost innumerable members of the royal families, including Queen Victoria and the Sultan of Turkey. At the time of his death he occupied the office of dentist to the royal families of England, Holland, Germany, Austria, Belgium and Russia, besides being the attendant of the majority of the most prominent families of the continent. During the course of his life he received innumerable orders and other decorations from foreign potentates. He was an intimate friend of Napoleon III, and during the Franco-Prussian war organized and maintained at his own expense an ambulance service that did incalculable good. He personally directed the movements

BLOOD STAINS.—The statement has been lately published that a warm solution of tartaric acid is most efficient in removing blood stains from towels, aprons, etc. Acetic acid has long been in use for this purpose, and either acid will probably answer equally well.

EMERGENCY TRACHEOTOMY.—Waste no time in giving an anesthetic. In diphtheria there is already a blunting of the sensibilities. In cyanosis and coldness of the skin the sensitiveness to pain is greatly diminished. In burns of the pharynx and larynx be ready to operate at the first evidence of sudden grave dyspnea.

HEALTH IN CHICAGO.—During August the total number of deaths was 1,967 or 1.21 per 1,000, as compared with 1.40 per 1,000 in August, 1896. Of these deaths 755 were persons under 1 year, and 303 between 1 and 5 years old. The principal causes were: Infantile diarrhea, 362; other acute intestinal diseases, 360; diseases of the nervous system, 207; consumption, 153; diseases of the heart, 97; pneumonia, 66; cancer, 57; diphtheria and membranous croup, 47; typhoid fever, 42, and bronchitis 41 deaths.

NOVEL METHOD OF ARRESTING HEMORRHAGE IN A CASE OF HEMOPHILIA.—Dr. Bienwald describes, in the *Semaine Medicale*, an ingenious method employed by him to control the bleeding from a small wound of the face in a case of hemophilia in a child two years old. Having failed to arrest the hemorrhage by the application of ferric chlorid, some blood was obtained by aspiration from a healthy subject and deposited upon the wound. In a few minutes coagulation took place and the hemorrhage at once ceased.

RIGHT TO PRACTICE DENTISTRY IN SCOTLAND.—In the case of a man who had been prosecuted for the illegal practice of dentistry, the appeal court of Scotland has decided that for a person to put up a brass plate with the inscriptions "American Dentistry, A. Emslie" and "Dental Office," is not an offense against the dentists' act, as it does not necessarily imply that A. Emslie is qualified and registered. The person, whose dentistry may really be as bad as the worst Scotch instead of being American, as his sign would imply, has the right therefore to continue his practice without let or hindrance.—*Medical Record.*

INFORMATION WANTED.—To gratify a pardonable curiosity, will the editor of the *Items of Interest* please state the name and duties of the colored man shown in the picture of Dr. William B. Finney's office, on page 860 of the November issue of that journal. Also, whether the horse and buggy in the first photograph of the same write-up belong to Dr. Finney, or are they merely put in to make the picture more realistic. Our only regret is, that a picture of the hand mallet, which "is a curiosity," is not given, care being taken to show the "circular depression accurately correct, an eighth of an inch deep and not more than a fourth in diameter." The mallet is graphically described, but a photograph would bring it still more vividly before us.

PRACTICE FOR SALE—I will dispose of my office furniture, lease, good will and practice to the right person. Possession given in February or March, 1898. Geo. H. Cushing, 919 Marshall Field's Annex, Chicago.

A Serviceable Christmas Gift.

Make yourself a present
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You will not regret it.

Ever since amalgams were first made the profession has sought for one on which they could rely. We now offer in FELLOWSHIP ALLOY an absolutely perfect amalgam.

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of the Red Cross Society, and it is said was the only man in Europe who might pass from camp to camp.

When the French communists were seeking for the Empress Eugenie to destroy her, he disguised her as a maid and aided her in her escape. In Germany he is known and loved for the services he rendered the ill-starred German Emperor Frederick when, as the Crown Prince, he was battling for his life against the inroads of the disease to which he finally succumbed. The Prince was at San Remo dangerously ill with the disease of the throat which baffled the skill of the most learned scientists of all Europe, when Dr. Evans was called into consultation. Sir Morrel Mackenzie, the eminent English surgeon, and Dr. Bergmann of Berlin, were in charge of the distinguished patient. They decided on an operation to remove the growth and he was present. At this time the old Emperor William was also lying sick unto death. It was known that his death was a matter of only a few days' time, and also that unless the cancer could be removed from the throat of the Prince he would precede his father to the grave. A tracheotomy was performed and the bleeding which followed could not be stopped by all the efforts of the physicians in attendance. Dr. Evans hurried to a silversmith's shop, and with his own hands constructed a silver tube, which was fitted into the wound and stopped the bleeding. Twenty-four hours later Emperor William died and Frederick lived for thirty days as Emperor of Germany.

Dr. Evans' fortune, which is estimated at $30,000,000, was amassed largely by investing in real estate in the vicinity of the Bois de Boulogne, in Paris.

Dr. Evans left no children. He founded the Home for Young American Women in Paris, which has proved a veritable godsend to many an American girl abroad. When here in August he announced it as his intention to leave his fortune to the cause of education, probably for the founding of a national institute of dentistry.

In stature Dr. Evans was below medium height, had stooped shoulders, a thin face, high cheek bones, and wore short side whiskers.

The death of Dr. Thomas Evans closes the earthly career of a man more noted than any other practitioner of dentistry. From a worldly standpoint it has been illustrious and brilliant. Royalty of the greatest renown have not only honored him by placing themselves under his care, but have lavishly bestowed upon him in return for these services great remuneration. The world has set upon his honors a high value.

It cannot be doubted that Dr. Evans' career proves him to have been more than ordinarily endowed in worldly wisdom. There are few men, even had their lives fallen into such places, that could have reaped such a harvest. It would be impossible for a man like Dr. Evans to be without great generosity of heart, and, since he was so blest, not to have had a strong sense of appreciation. His biography, we doubt not one will be published, will read like a romance, and the souvenirs that have been placed in his cabinets will arouse a feeling of worthy pride that he was a member of our profession. We always felt in the presence of Dr. Evans that he had not been spoiled as an American. He was a gentleman by instinct, and he maintained this quality in all his associations with his fellow practitioners. Dentistry in Europe was raised by him to a height that it would not easily have attained otherwise. When we realize that he was taught in the school of fifty years ago, which was far deficient in instruction to the colleges of to-day, the natural capabilities of Dr. Evans are shown even more strongly. We have seen his work, as many have, and it did credit to the operator at his time. His financial accumulations make him appear a Monte Cristo, and there is a possibility that a large endowment is to come from this marvelous fortune for our so-called poverty-stricken profession. G. ALDEN MILLS.

New York, Nov. 20, 1897.